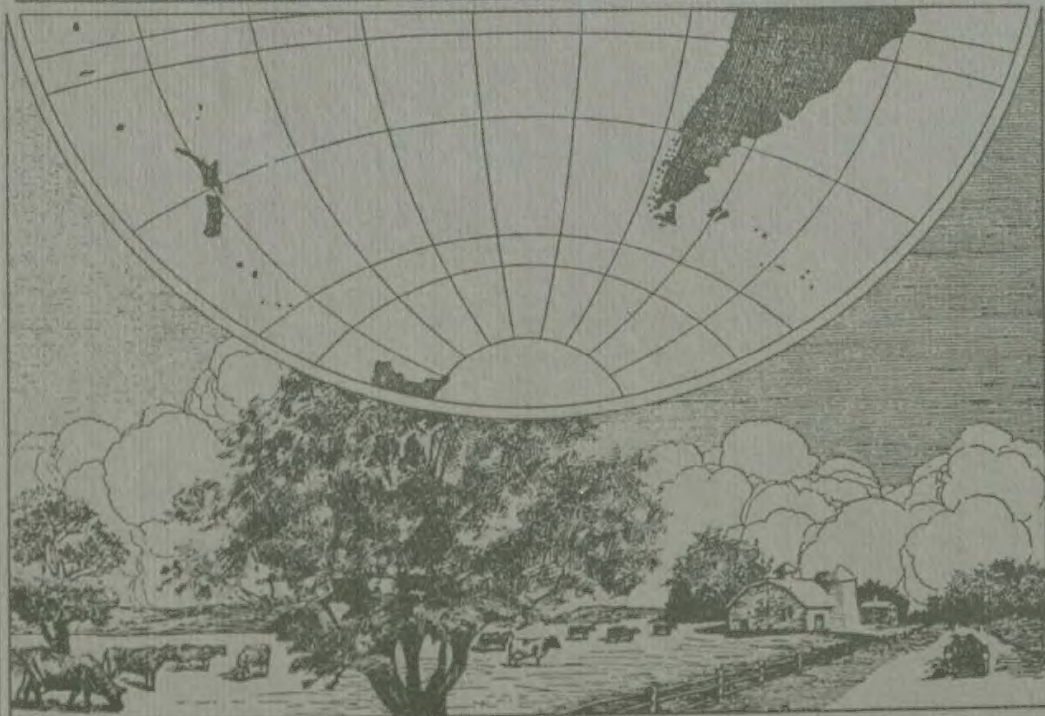




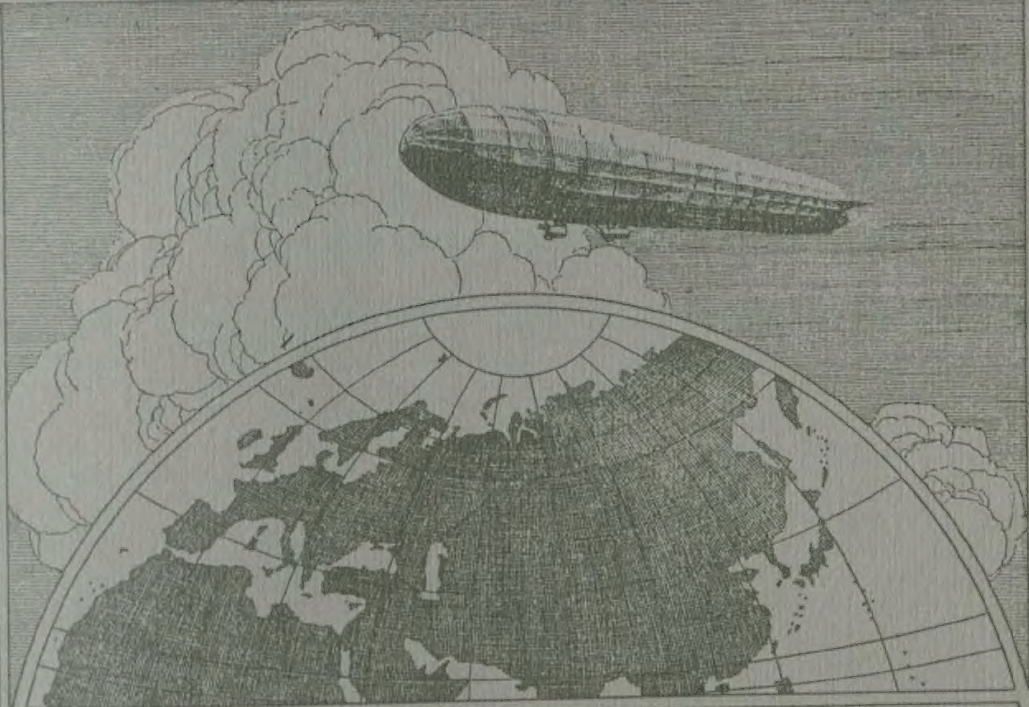




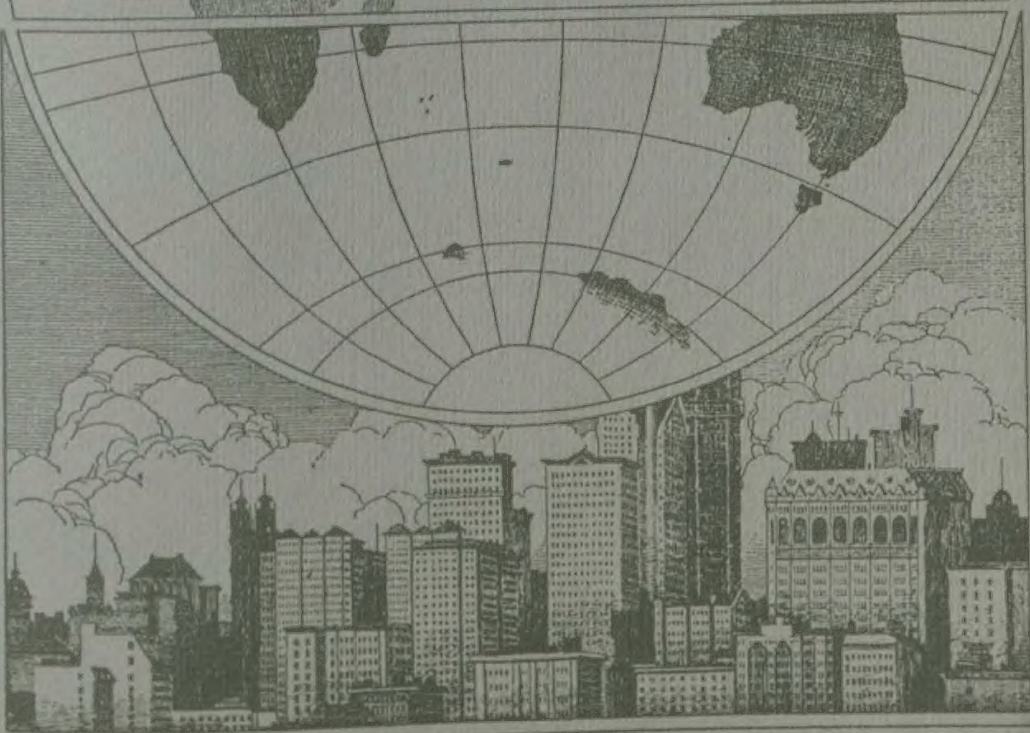
# THE WORLD BOOK



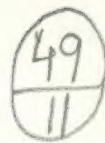




# THE WORLD BOOK



J-K Volume 11



# The World Book Encyclopedia



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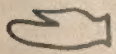
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Jj

**J** is the tenth letter of the English alphabet, and was the last to be added. It developed from the letter *I*, which was the tenth letter in the alphabet used by the Semites, who once lived in Syria and Palestine. They probably adapted an Egyptian *hieroglyphic*, or picture symbol, for *hand* to represent the letter, but the resemblance is slight. The ancient Greeks used the letter and passed it on to the Romans. In the late Middle Ages, when two or more *i*'s were written together, scribes often added a long tail to the last one. Later, the tail was used to indicate an initial *I*. During the 1600's, an *i* at the beginning of a word was written with a tail. The *j* developed from these forms, and became a symbol for the consonant *j*, as in *joy*. See Alphabet.

#### Development of the letter J



The ancient Egyptians drew this symbol of a hand about 3000 B.C. Two letters, *J* and *I*, developed from the symbol.



The Semites simplified the symbol for their alphabet about 1500 B.C.



The Phoenicians changed the Semitic letter about 1000 B.C. They named it *yod*, which was their word for *hand*.



The Greeks, about 600 B.C., made the letter a single stroke called *iota*.



The Romans gave the *I* its capital form about A.D. 114.



Medieval scribes added a tail to the *I* when it appeared in certain positions. The *J* developed from this practice.

#### Common forms of the letter J

Jj

**Handwritten letters** vary from person to person. *Manuscript* (printed) letters, *left*, have simple curves and straight lines. Cursive letters, *right*, have flowing lines.

Jj Jj

**Roman letters** have small finishing strokes called *serifs* that extend from the main strokes. The type face shown above is Baskerville. The italic form appears on the right.

Jj Jj

**Sans-serif letters** are also called *gothic letters*. They have no serifs. The type face shown above is called Futura. The italic form of Futura appears on the right.

Jj

**Computer letters** have special shapes. Computers can "read" these letters either optically or by means of the magnetic ink with which the letters may be printed.

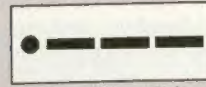
The small letter *j* first appeared about 1200. It developed from the small *i*.

i j  
1200i  
Today

#### Special ways of expressing the letter J



International Flag Code



International Morse Code

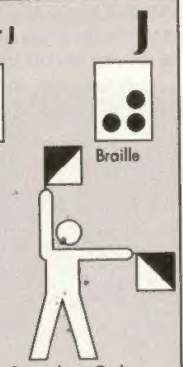


Braille



American Sign Language

British Sign Language



Semaphore Code



**J particle.** See **Psi particle**.

**Jaafar, Long** (? -1857), helped to establish and develop the tin-mining industry in Perak, Malaysia.

Long Jaafar was born in Perak. In the mid-1800's, Long Jaafar was the first person to realize the commercial possibilities of the Larut area in the northern coastal region of Perak. In the mid-1800's, large numbers of Chinese prospectors arrived in the region after the discovery of some rich tin-mining land. Long Jaafar bought from the sultan the various sources of revenue in the district. He then opened up Larut and all its rivers and developed new tin mines. As he prospered, Long Jaafar extended his authority to adjoining districts.

**Jaafar, Tuanku** (1927- ) became the king of Malaysia in 1994. His Malay title is *yang di-pertuan agong*.

Tuanku Jaafar Al-Marhum Tuanku Abdul Rahman was born in Kelang, in the state of Selangor, and educated in Kuala Kangsar. He read law at Nottingham University in the United Kingdom. After a career in the Malay Administrative Service, he entered the diplomatic service in 1957. He was appointed ruler of Negeri Sembilan and, in 1979, elected deputy king. In 1994, the nine state rulers elected Tuanku Jaafar tenth king of Malaysia for a five-year term. See **Royal families** (Malaysia).

**Jabal Katrinah.** See **Egypt** (Land).

**Jabir ibn Hayyan.** See **Geber**.

**Jabiru** is the name of two different species of storks. One lives in Central and South America, and the other lives from India to Australia.

The South American jabiru has an all-white plumage. The bill and legs, as well as the naked head and neck, are all black except for a bright red ring of skin that forms the lower part of the throat pouch which is inflated when the bird is excited. One of the largest American flying birds, the jabiru is about 1.5 metres long. The bill is 30 centimetres long.

The Indo-Australasian jabiru, also known as the *black-necked stork*, is 1.3 metres long. It has a black head and a white body. In Australia, the jabiru is found in the northern and eastern parts of the country.

Jabirus feed on fishes, frogs, and reptiles. They make large nests in swamps and forests. See also **Stork**.



The South American jabiru has a huge black bill.

**Scientific classification.** Jabirus belong to the stork family, Ciconiidae. The South American jabiru is *Jabiru mycteria*, and the Australasian jabiru is *Ephippiorhynchus asiaticus*.

**Jaçana** is a small wading bird of the tropics, with remarkably long toes and nails. It is related to the plover, and resembles the gallinule in appearance and habits.



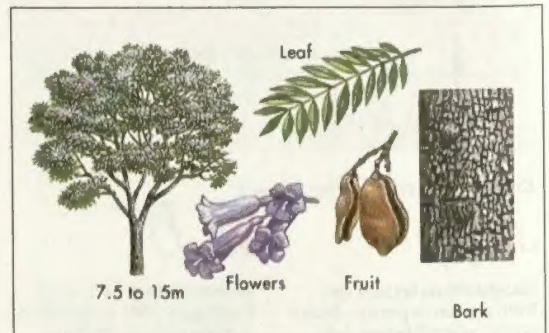
The **Jaçana** has long toes that enable it to run over floating water plants as it searches for food. The American jaçana, above, has purplish-chestnut feathers.

The Oriental pheasant-tailed jaçana has a long tail like a pheasant's. This bird is brownish above and purplish underneath. It also has a white head and white wings. The American jaçana lives in the tropics and as far north as Texas, U.S.A. It has purplish-chestnut feathers. In the bend of each wing is a strong spur, which the jaçana uses as a weapon. The Australian comb-crested jaçana has a bright-red head comb and a short tail.

See also **Gallinule**; **Plover**.

**Scientific classification.** Jaçanas belong to the jaçana family, Jacanidae. The pheasant-tailed jaçana is *Hydrophasianus chirurgus*, the American jaçana is *Jaçana spinosa*, and the comb-crested jaçana is *Irediparra gallinacea*.

**Jacaranda** is the Brazilian name for a group of trees and shrubs native to tropical America. The tall, beautiful fern-tree *jacaranda* grows in many subtropical regions of the world. It is often planted in streets, to provide



The **jacaranda** is a beautiful flowering tree that grows in tropical and subtropical climates.





**Jacarandas** are trees native to tropical America. They are grown as ornamental trees in many regions of the world with warm climates.

shade and decoration. The tree sheds its leaves in early spring and produces flowers in late spring.

Boxwood is a species of jacaranda with whitish, coarse-grained wood. The wood is used to make matches, boxes, and coffins. It is also a source of wood pulp.

**Scientific classification.** Jacarandas make up the genus *Jacaranda* in the bignonia family, Bignoniaceae. The fern-tree jacaranda is *J. mimosifolia*, and the boxwood is *J. copaia*.

**Jack Frost** is the imaginary sprite who is supposed to trace the beautiful patterns that frost makes on trees, windows, and other objects. He appears in many nursery rhymes and stories as an elflike character representing nipping cold.

Jack Frost probably originated in Scandinavia. In Norse mythology, Kari, god of the winds, had a son named Jokul or Frosti. *Jokul* means *icicle* and *Frosti* means *frost*. Frosti had a son named *Snojo*, meaning *snow*. In Russian stories, the frost is represented as Father Frost, a mighty smith who binds the earth and waters with his chains. In German folk tales, frost sometimes appears as an old woman. When Old Mother Frost shakes her bed, white feathers fly, and then snow begins to fall.

**Jack-in-the-pulpit** is any of several wild flowers that grow in moist woodlands and swampy areas.

A jack-in-the-pulpit has a *spadix*, a cluster of small flowers crowded on a slender stalk. This part of the plant is the "preacher." It is enclosed in a hoodlike, leafy *spathe*, which forms the "pulpit." The plant also has clusters of scarlet or red-orange berries. The jack-in-the-pulpit is poisonous when eaten raw.

Jack-in-the-pulpit belongs to the genus *Arisaema*. Most species of *Arisaema* are native to Africa and Asia. Many types are cultivated as ornamental plants and are called cobra lily, dragon arum, and snail flower. Jack-in-the-pulpits are related to the Old World plant *lords and ladies*, or *cuckoopint*.



The Jack-in-the-pulpit is a wild flower in the arum family.

**Scientific classification.** Jack-in-the-pulpit belongs to the arum family, Araceae. The most common species is *Arisaema triphyllum*.

See also **Arum**.

**Jack-o'-lantern** is a name often given to a hollowed-out pumpkin which has eyes, nose, and a mouth carved in one side. Jack-o'-lanterns are usually made on Halloween, October 31. A candle or other light is placed inside the pumpkin, and the light shines eerily through the carved features. The term also refers to the light that frequently shines from rotting stumps or logs in swampy land. St. Elmo's fire is sometimes called jack-o'-lantern. See also **Halloween**; **Saint Elmo's fire**; **Will-o'-the-wisp**.

**Jack rabbit** is a name for four kinds of large hares found in deserts and prairies in western North America. The four kinds are the *black-tailed*, *white-tailed*, *white-sided*, and *antelope* jack rabbits. All of these hares have



The black-tailed jack rabbit is sometimes called the *jackass hare* because its long ears resemble those of a donkey.



#### 4 Jack Russell terrier

long hind legs, large eyes, and long, thin ears. They have brownish-grey fur and a pure white belly. The antelope jack rabbit, the largest kind, weighs about 3.5 kilograms. It grows to nearly 70 centimetres long.

Jack rabbits like to eat *succulents*, plants with thick, juicy leaves or stems. Jack rabbits often become pests by eating such crops as alfalfa. The chief enemies of jack rabbits are coyotes, but eagles, bobcats, badgers, and other animals also prey on them.

**Scientific classification.** Jack rabbits are in the rabbit and hare family, Leporidae. They belong to the genus *Lepus*.

See also Hare; Rabbit.

**Jack Russell terrier** was developed in England in the early 1800s by John Russell, a hunting clergyman in Devon. Russell always kept his own pack of hounds, and bred his own strain of hunt terrier. The Jack Russell terrier developed from John Russell's original dog, a fox



**The Jack Russell terrier** was developed as a hunting dog in England in the early 1800s.

terrier. It has a strong head, powerful jaws, dark eyes, and V-shaped ears. It has a high-set tail at least 10 centimetres long. The coat is either smooth or wire haired, and the overall colour is white. It has hound-type markings, generally coloured red, black, or tan. It stands 30 to 38 centimetres at the shoulder, and weighs from 4 to 6 kilograms. Some types of Jack Russell are short legged, and only grow to 22 centimetres at the shoulder.

**Jack the Ripper** was an unknown murderer who terrorized London in 1888. From August 31 to November 9, five prostitutes were killed and mutilated. The murderer was called Jack the Ripper because a knife was used to cut the victims' throats and slash their bodies.

The murderer was never caught in spite of the efforts of police, citizen patrols, bloodhounds, and even fortunetellers. Scotland Yard, the headquarters of the London Metropolitan Police, identified three principal suspects. All were men who were known to be insane. However, the police failed to prove that any of them had committed the murders. Widespread charges of police incompetence caused the commissioner of Scotland Yard, Sir Charles Warren, to resign on November 8, the day before the fifth murder.

The London police received hundreds of letters from people who claimed to be the murderer. Only one of the letters seemed to be authentic. The sender's address was "From Hell," and part of a kidney of one of the victims was enclosed.

**Jackal** is a wild dog that lives in Asia, Africa, and southeastern Europe. Arabs call it "the howler" because of its mournful cry and yapping, usually heard at night.

Jackals feed, mainly at night, on almost any small animal, but they are chiefly *scavengers* that eat animals they find dead. For this reason, they are important as "street cleaners" in some Asian and African cities. Jackals have a musky smell. Because of this, they are considered poor pets.

The *common jackal* looks more like a fox than a dog. It is about 35 centimetres high at the shoulder, and 60 to 75 centimetres long. It has a greyish-yellow or brown



**The jackal** feeds mainly by scavenging. In the background, another scavenger, a vulture, waits for its turn to eat.

coat, and a bushy tail about 20 centimetres long. People prize the *black-backed jackal* of Africa for its fur, which is more attractive than that of the common jackal. The *side-striped jackal* lives in eastern and southern Africa.

**Scientific classification.** Jackals belong to the dog family, Canidae. The common jackal is classified as *Canis aureus*, the black-backed jackal is *C. mesomelas*, and the side-striped jackal is *C. adustus*.

**Jackdaw** is a small crow that is common in Europe and North Africa. It is dusky black, with grey on the back of the head and on the cheeks and neck. It measures about 33 centimetres long.

Jackdaws are found in parks and woodlands, on farms, and in towns. They are social birds that live in flocks all year round. Each member knows its status, and high-ranking birds are allowed to eat and drink before low-ranking birds. Jackdaws nest in holes in trees, cliffs, buildings, or towers. Males and females mate for life.

Jackdaws are clever and mischievous. They often carry away and hide small bright objects. Their call is a loud "tchack" note. Jackdaws can learn to imitate sounds.

**Scientific classification.** The jackdaw is in the crow family, Corvidae. It is *Corvus monedula*.





**Jackfruit** is a tree native to tropical Asia. The large fruit, up to 90 centimetres long, has a waxy, yellow pulp.

**Jackfruit** is a fast-growing tropical tree with a large, edible fruit. The tree is evergreen and grows up to 15 metres tall. It has separate male and female flowers. The fruit can weigh up to 27 kilograms. It has a sickly sweet smell and a waxy, yellow pulp.

Jackfruit are grown in India, Malaysia, and throughout the tropics. People eat the pulp of the fruit as well as the large seeds which they boil or roast. The rind of the fruit and the leaves are fed to livestock.

Jackfruit trees are often planted to give shade and support to other crops. The wood from jackfruit trees is valuable as timber and as a source of yellow dye.

**Scientific classification.** The jackfruit belongs to the mulberry family, Moraceae. It is *Artocarpus heterophyllus*.

**Jacks**, also called *jackstones*, is the name of a children's game played with small metal objects called *jacks*. Players must pick up the jacks from the ground while tossing and catching a ball or another jack. Children usually play with a ball and six or more jacks. Players take turns trying to do a number of stunts without a miss. The first player to complete the stunts wins the



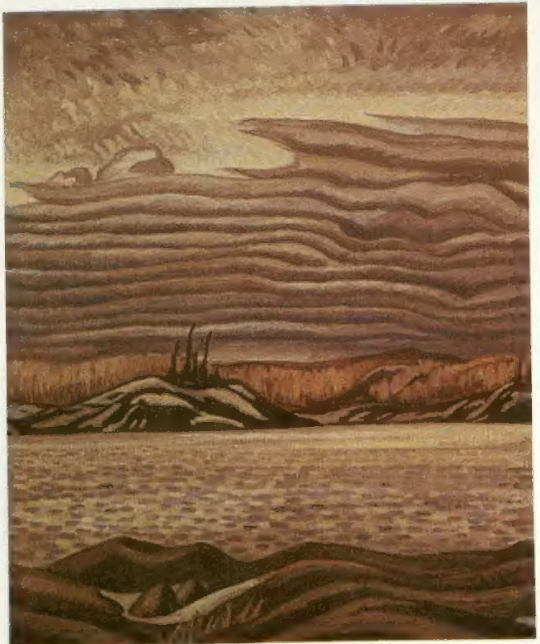
**Jacks** is a children's game played with a rubber ball and metal objects called *jacks*.

game. Some of these stunts are called *Downs and Ups*, *Upcast*, *Downcast*, *Scrubs*, *Bounce*, and *No Bounce*.

Jacks without a ball is faster and more difficult. Ten jacks are usually used. Stunts are performed while one jack is being tossed in the air. Some of the stunts are *Over and Back*, *Scatters*, *Pigs in the Pen*, and *Sweeps*.

Each metal jack has six points. The game probably came from *Pebble Jackstones*, which is still played in Asia and Europe.

**Jackson, Alexander Young** (1882-1974), a Canadian landscape painter, was one of the original members of the group of Toronto artists, who, during the 1920's and early 1930's, called themselves "The Group of Seven."



Detail from painting on canvas (1936); National Gallery of Canada, Ottawa

**Algoma, November** is one of many wilderness landscapes Alexander Jackson painted.



The **jackdaw** belongs to the crow family. It lives in Europe and North Africa and often nests in towns and villages.



These artists tried to portray the glories of the Canadian wilderness, and they produced many artistic works in fresh, bold colours. Jackson travelled across Canada and explored the land for 20 years. By the late 1940s, the group's influence had declined greatly.

Jackson was born in Montreal. He studied first at evening classes in Montreal. Later, he studied at the Art Institute of Chicago and the Julian Academy in Paris.

See also **Group of Seven**.

**Jackson, Andrew** (1767-1845), was the seventh president of the United States from 1829 to 1837. Nicknamed "Old Hickory" because of his toughness, Jackson made the presidency a more powerful office. Jackson's strong actions won him much praise, and he became known as a champion of the people.

Jackson was born on March 15, 1767, in either North Carolina or South Carolina—no one really knows which. The son of poor immigrants, Jackson became an orphan at 14. Jackson became a lawyer, and was admitted to the bar in 1787.

Jackson's fight against the Bank of the United States became the major issue of his first administration. In 1816, Congress had granted the bank a 20-year charter. The bank had authority over the currency system of the U.S. Jackson thought the law that had created the bank was unconstitutional. He criticized the bank for failing to establish a "uniform and sound" currency. In 1832, Congress passed a bill rechartering the bank. Jackson vetoed it. His opponents in Congress tried to override his veto but failed.

In the election of 1832, Jackson won another term. He interpreted his reelection as public approval of his bank policy. He ordered the government's deposits removed from the Bank of the United States and placed in state banks. The withdrawal of the government's funds reduced the powers of the national bank.

Jackson thought the government should treat Indians as wards of the nation and not as members of independent nations. He doubted that Indians and white people could live together, and therefore favoured moving the Indians in the East to the West. Jackson's supporters in Congress helped win approval of the Indian Removal Act of 1830. The act called for the removal of the Indian tribes east of the Mississippi River and their relocation on land west of that river. By the end of Jackson's administration, almost all Indians east of the river—including the Creek, Choctaw, Cherokee, and Chickasaw—had signed treaties to move west. Thousands of Indians, deprived of their land, died during the forced migration.

**Jackson, Glenda** (1936-

), a British actress, became a member of the United Kingdom Parliament in 1992. She won the north London constituency of Hampstead and Highgate for the Labour Party.

In 1963, Jackson joined the Royal Shakespeare Company, where her roles included Ophelia in Shakespeare's *Hamlet*. Jackson was acclaimed as a leading stage actress in 1964 for



Glenda Jackson

her portrayal of Charlotte Corday in *Marat/Sade*. She made her first appearance in a feature film in *This Sporting Life* (1963).

Jackson won Academy Awards for her acting in *Women in Love* (1970) and *A Touch of Class* (1973). Her other film appearances include *The Music Lovers* (1971); *The Romantic Englishwoman* (1974); *Hopscotch* (1980); and *Salome's Last Dance* (1988). She received an Emmy Award for her portrayal of Queen Elizabeth I in the television series *Elizabeth R* (1971).

Glenda Jackson was born in Birkenhead, on Merseyside, England. She was educated at West Kirby Grammar School for Girls, and later at the Royal Academy of Dramatic Art.

**Jackson, Jesse** (1941- ), is a black American civil rights activist, political leader, and Baptist minister. He was a candidate for the Democratic presidential nomination in 1984 and 1988. In both campaigns, Jackson focused attention on the problems of blacks and other minority groups. Jackson also led efforts to register more black voters and to increase representation of minority groups at the 1984 and 1988 national conventions of the Democratic Party. Jackson failed to get the presidential nomination at either convention.

Jesse Louis Jackson was born in Greenville, South Carolina. He graduated from North Carolina Agricultural and Technical State University and attended the Chicago Theological Seminary. From 1966 to 1971, Jackson served as director of Operation Breadbasket, the economic arm of the Southern Christian Leadership Conference. In this role, he persuaded many white-owned companies to hire blacks and to sell products made by black-owned firms.



Jesse Jackson

In Chicago in 1971, Jackson founded People United to Save Humanity (PUSH), an organization devoted to gaining economic power for blacks. In the mid-1970s, the organization's name was changed to People United to Serve Humanity. In 1976, Jackson began a project called PUSH for Excellence, a programme designed to help black students get a better education.

Jackson made several trips abroad that resulted in the freeing of hostages or political prisoners. In 1984, he obtained the release of a captured U.S. airman whose plane had been shot down by Syrian forces in Lebanon. Also in 1984, Jackson obtained the release of 22 Americans and 26 Cubans who were in Cuban prisons. In 1990, he helped obtain the release of several Americans who were being detained by Iraq.

In 1989, Jackson was awarded the Spingarn Medal for his civil rights and political achievements. In 1990, Jackson was elected a nonvoting member of the United States Senate from the District of Columbia. The position carries no salary and no legislative responsibility. In this position, Jackson's main duty is to lobby for statehood for the District of Columbia.



**Jackson, Mahalia** (1911-1972), was a famous American gospel singer. Her singing combined powerful vitality with dignity and strong religious beliefs. She disliked being identified with nonreligious music, though her singing style revealed the influence of jazz.

Jackson was born in New Orleans. She sang in the choir of the church of which her father was minister. In 1928, she moved to Chicago, where she worked as a hotel maid and packed dates in a food factory. She also became a soloist in the choir of a Baptist church. She began to record in the 1930's and sang on gospel tours across the United States. By the late 1940's, she was attracting large audiences among the general public.



Mahalia Jackson

During the 1950's, Jackson made several international tours and won world fame. She became closely associated with the civil rights movement in the early 1960's. Jackson considered her singing a means of eliminating racial tensions.

**Jackson, Marjorie** (1931- ), known as the *Lithgow Flash*, was the first Australian woman to win an Olympic gold medal in athletics. She won the 100-metre sprint at the Helsinki Olympic Games in 1952. She also won the 200-metre event in the same games, setting an Olympic record of 23.4 seconds in a preliminary round. Running the last leg of the 4 × 100 metre relay, she took the baton from fellow runner Winsome Cripps. The baton hit her knee and flew into the air. The time taken in retrieving the baton lost the race for Australia.

Marjorie Jackson was born at Coffs Harbour, New South Wales, and educated at Lithgow. At the age of 17, she beat Dutch athlete Fanny Blankers-Koen, who held four Olympic gold medals.

**Jackson, Michael** (1958- ), an American singer, dancer, and songwriter, is one of the most popular and exciting performers of rock music. His album *Thriller* (1982) became the largest selling album ever recorded. *Thriller* has sold 40 million copies throughout the world. Jackson wrote four of the songs on the album, including the hits "Beat It" and "Billie Jean." His album *Bad*, released in 1987, was also a major hit.

Jackson's music has a strong rhythm and steady dance beat that combines elements of soul, rhythm and blues, and rock. His rhythmic dancing is a feature of his live and film performances. Jackson starred in several popular short films called *rock videos*. The rock video of the song "Thriller" is a 13-minute horror film that combines Jackson's singing and dancing with specu-



Michael Jackson

lar visual and sound effects. Jackson also made a popular feature-length video called *Moonwalker* (1989).

Michael Joseph Jackson was born in Indiana, and began performing locally with his brothers when he was 5 years old. In 1968, the brothers signed with Motown Records and took the name the Jackson Five. Michael was the group's lead singer and dancer. His first solo album, *Got to Be There*, was released in 1972. In 1975, the Jackson Five switched to Epic Records. The group began recording as the Jacksons in 1976. Michael established himself as a solo singer with the album *Off the Wall* (1979). He also appeared in the film *The Wiz* (1978). Jackson wrote an autobiography, *Moonwalk* (1988). In 1994, Jackson married Lisa Marie Presley, daughter of the rock star Elvis Presley. Janet Jackson, Michael's sister, is also a major rock star.

**Jackson, Stonewall** (1824-1863), was one of the most famous Confederate generals in America. He fought under General Robert E. Lee in the American Civil War (1861-1865). At the first Battle of Bull Run, or Manassas, Jackson's brigade faced overwhelming odds, but formed a strong line and held its ground. General Barnard Bee, trying to rally his Southern troops, saw Jackson's line and shouted, "There is Jackson standing like a stone wall. Let us determine to die here, and we will conquer." After that, Jackson was known as "Stonewall," and his brigade as the *Stonewall Brigade*.



Stonewall Jackson

Jackson's chief characteristics were his religious nature, his careful attention to military detail, his firm discipline, and his capacity to get the maximum efforts from his men.

Thomas Jonathan Jackson was born in Clarksburg, Virginia (now West Virginia), on Jan. 21, 1824. Orphaned at an early age, he received sketchy schooling in country schools. But he secured an appointment to the United States Military Academy in 1842. As soon as he received his commission as a lieutenant of artillery, Jackson was assigned to the war zone in Mexico. There he first met Robert E. Lee and rose to the temporary rank of major in less than a year. Jackson left the army in 1851 and taught at the Virginia Military Institute at Lexington until 1861.

Although he favoured preservation of the Union, Jackson went with his state, Virginia, when it *seceded* (withdrew from the Union). An unknown when the civil war started, he soon made a reputation. In the Shenandoah Valley in 1862, Jackson earned international fame. With not more than 17,000 men, he defeated 60,000 Union troops in a series of lightning marches and brilliant battles. After the campaign ended in June, Jackson raced to the aid of Lee at Richmond.

Jackson fought his greatest battle in May, 1863, near Chancellorsville, Virginia. Jackson's men struck from behind and drove the enemy back in wild disorder. At nightfall, Jackson went ahead of the line to scout. In the darkness, some of his own men mistook him for the enemy and shot him. As Jackson lay wounded, doctors



amputated his left arm. Lee remarked: "He has lost his left arm; but I have lost my right arm." Jackson died on May 10, eight days after he was shot.

See also *American Civil War*.

**Jacksonville** (pop. 672,971; met. area pop. 906,727), United States, is the largest city in Florida and the state's financial and insurance capital. It is also an important seaport and a major distribution and transportation centre of the Southeastern United States. Jacksonville lies in northeastern Florida. The city ranks as Florida's second busiest port. It handles about 11 million metric tons of cargo annually. Shipbuilding and ship repair are also important in Jacksonville.

**Jackstones.** See *Jacks*.

**Jacky Jacky**, an Aborigine from the Merton district in New South Wales, Australia, accompanied Edmund Kennedy on his ill-fated expedition along the northeastern coast of Queensland in 1848. Jacky Jacky's real name was *Galmarra*.

Kennedy and his party were overcome by heat and hunger, and were attacked by hostile Aborigines. Kennedy left eight men behind at Weymouth Bay and two more men behind at Shelburne Bay. He kept Jacky Jacky with him as he tried to push on to meet a relief ship at Cape York. But Aborigines wounded both men. Jacky Jacky stayed with Kennedy until he died. Then he buried Kennedy's notes and struggled on to meet the relief ship. He directed the ship to the camps at Weymouth and Shelburne bays, but the rescuers found only two men alive.

See also *Kennedy, Edmund*.

**Jacob**, in the book of Genesis in the Bible and in the Quran, was the son of Isaac. According to the Bible, he was the father of 12 sons and 1 daughter by his wives Leah, Rachel, Zilpah, and Bilhah. Jacob's sons were the founders of the 12 tribes of Israel. Some scholars believe these idealized family relationships really reflect complex patterns of tribal settlement and migration. Whatever the actual historical background, Jacob's character, with its many conflicting dimensions, has come to stand for and embody the characteristics of the entire people called Israel.

Jacob bought his older twin brother Esau's birthright with a bowl of stew (Gen. 25: 29-34). Later, at the urging of his mother, Rebecca, Jacob enforced his claim by pretending to his blind and aged father that he himself was Esau. Thus, he obtained from Isaac the words of blessing Isaac had meant for Esau (Gen. 27). Esau was so angry that Jacob fled for his life.

On the way to his uncle Laban, Jacob slept at a place called Bethel, where he dreamed of a wonderful ladder between heaven and earth. In the dream, God promised to protect and bless Jacob and one day bring him home (Gen. 28: 11-17). Much encouraged, Jacob went on to Laban's home. There he fell in love with Laban's daughter Rachel. But Laban forced Jacob to accept a marriage to his older daughter, Leah, before he could have Rachel for his wife. After working 20 years for Laban, Jacob left for home in Palestine with his wives and children.

On his way home, Jacob wrestled with a man who he discovered was God or, according to some scholars, an angel (Gen. 32: 22-32). At the end of the encounter, Jacob received God's blessing and a new and more religious name—Israel. The name has been said to mean "he who

strives with God" or "God strives." The name has also been interpreted as meaning "May God rule." Jacob spent his last years in Egypt, where his son Joseph brought him to live.

See also *Isaac*; *Joseph*; *Rachel*; *Jews* (Beginnings).

**Jacobins** were members of the Jacobin Club, the most radical political society to rule during the French Revolution. The society got its name from its Paris headquarters near the church of St. James (*Jacques* in French). It was the only national organization in the country for a while after the Revolution began. The Jacobins came mainly from the middle class.

They opposed foreign war at first, fearing that it would lead to a military dictatorship. But when war broke out with Prussia and Austria in 1792, the Jacobins supported it in order to gain control.

The Jacobins came to power in 1793 and began the Reign of Terror, sending hundreds of French people to the guillotine (see *Guillotine*). Robespierre was the most influential Jacobin leader. But his fellow Jacobins turned on him in 1794 and executed him. After his death, the Jacobins lost power. The term *Jacobin* is still used to describe a radical.

See also *French Revolution*; *Girondists*; *Mirabeau*, *Comte de*; *Robespierre*; *Sieyès*, *Emmanuel J.*

**Jacobite risings**, in 1715 and 1745, were attempts to restore the exiled Stuart family to the throne of England. There were two Jacobite risings, both on behalf of James Edward Stuart, son of James II. The first was led by the Earl of Mar. The second was led by James's son, Charles Edward. Supporters of the Stuarts were called *Jacobites* from *Jacobus*, the Latin form of *James*.

The first Jacobite rising was in 1715, when the Earl of Mar rallied the people of the Scottish Highlands to support James Edward Stuart, the *Old Pretender*. His armies dwindled after the Battle of Sheriffmuir. At the same time, the Earl of Derwentwater led an unsuccessful revolt in England.

In 1745, Charles Edward Stuart, the *Young Pretender*, landed in Scotland with seven followers. The Highland Scots again supported a Stuart, and defeated an English army at the Battle of Prestonpans. Charles Edward led an army of about 5,000 into England, but, receiving no further support, returned to Scotland and was defeated at Culloden.

Neither rising ever had a great chance of success because the main support for the Stuarts was from the Highlands of Scotland. English Roman Catholics who sympathized with the Stuarts could not accept their belief in the power of kings (see *Divine right of kings*). The risings led to the repression of the Highland Scots.

**Jacobs, Joseph** (1854-1916), was a British scholar best known for his collections of folk tales for children. Jacobs collected tales from England, Scotland, and Wales and modified them for younger audiences. *English Fairy Tales* (1890) and *More English Fairy Tales* (1893) rank among his most popular works. They include such stories as "Jack and the Beanstalk" and "The Three Little Pigs." Jacobs' other collections of tales include *The Fables of Aesop* (1889), *Celtic Fairy Tales* (1891), and *More Celtic Fairy Tales* (1894).

Jacobs was born in Sydney, Australia, and moved to England in the early 1870s. In 1900, he settled permanently in the United States. Jacobs was active in Jewish



affairs throughout his career and wrote many works on Jewish history.

See also **Literature for children** (Kinds (Folk literature)).

**Jacquard** is the name of an elaborate weave found in table damask, bedspreads, and brocades. Its name comes from the Jacquard loom, on which flower designs or even pictures of men and women can be woven. The name Jacquard is also used for a type of knitting that requires a machine like the Jacquard loom to make changes in colour and design.

See also **Jacquard, Joseph Marie**.

**Jacquard, Joseph Marie** (1752-1834), perfected the automatic pattern loom. Jacquard looms could weave cloth with intricate patterns as easily as older looms made plain cloth (see **Jacquard**). Jacquard was born in Lyon, France, the son of a weaver. In 1800, he saw an English journal that offered a prize for a simple pattern loom. He resolved to invent one for France. His first try won a medal at an industrial exhibition in 1801, and he was taken to the Paris Conservatoire des Arts et Métiers to improve it. By 1804, he had perfected a loom action that has remained essentially the same.

**Jade** is a hard, tough, and highly coloured stone widely used for fine carvings and jewellery. During the days of ancient Chinese civilization, it took the place of gold and other precious stones. The Chinese carved it into jewellery, and also buried it with their dead. Many beautiful jade carvings, dating from 1400 B.C., have been dug from the ruins of Anyang, the capital of the first Chinese dynasty. Over the years, the Chinese developed new sources of the mineral and improved their carving technique. Jade carving reached its height during the Ming Period (1368-1644). The carvings of this period are treasured by collectors.

Two minerals, jadeite and nephrite, are classified as jade. Their chief colours are white and green.

**Nephrite**, the chief source of jade, was the mineral which the early Chinese used for carving. At that time, it came from Turkestan. Today, it comes chiefly from New Zealand. Nephrite deposits also have been found in the U.S. states of Wyoming and Alaska. The principal jade-cutting centres are at Beijing, Shanghai, and Guangzhou in China. The mineral is translucent to opaque, and comes in a wide range of colours, including dark green, white, yellow, grey, red, and black. The most valuable type of nephrite is a dark green jade called *spinach jade*.

**Jadeite**, or *Chinese jade*, is a rare jade mineral, found mainly in Burma, Japan, California in the U.S.A., and in carved objects in Mexico. It is more valuable than nephrite because of its beautiful colours, such as light-green or lilac. Once in a while, small amounts of a transparent emerald-green coloured jadeite are found in boulders. The best quality of this jade is very valuable.

Jade minerals have a peculiar structure of interlocking meshes of fine needles that make them very strong and suitable for carving into delicate patterns and thin implements. Nephrite tools were found in the Lake Dweller remains of the New Stone Age in Europe and Central America.

See also **Gem** (picture); **China** (Arts (picture: Chinese ceremonial art)).

**Jaeger**. See **Skua**.

**Jaffa**, Israel, is one of the oldest cities in the world. Ancient Egyptian records confirm its existence. It has been an important seaport since Biblical times, when it was called *Joppa*. Most of the Arab population fled during the Arab-Israeli war in the 1940s. The city merged with Tel Aviv in 1950 (see **Tel Aviv**).

**Jagannath** is the name of a famous Hindu temple and idol at Puri, in the state of Orissa, India. It is also spelled *Juggernaut*. **Jagannath** is a Sanskrit word meaning *lord of the world*. Anantavarman Colaganga, a king of India, completed the costly shrine in the 1100s. The wooden idol has a hideous black face with a blood-red mouth. Its eyes are precious stones.

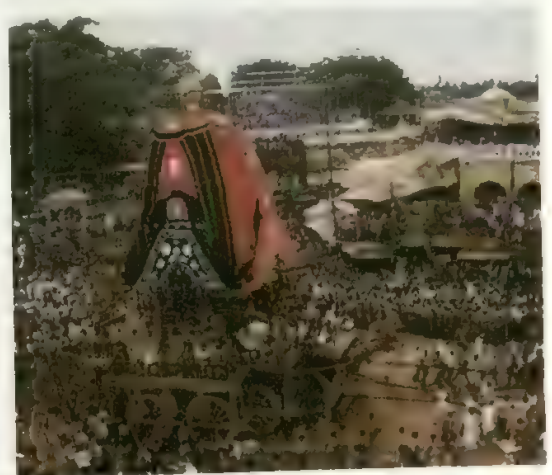
The idol rests on a throne between its brother Bala-Rama and its sister Subhadra. On festival days, the three are placed on separate wagons and pulled through the streets. The wagon of the Jagannath is 14 metres high and has 16 wheels. Sometimes careless pilgrims are crushed to death beneath the wheels. It was once believed that these worshippers cast themselves in front of the wagons deliberately. But it is now known that a death within the temple or in the god's presence is considered unholy to Hindus.

**Jagger, Mick**. See **Rolling Stones**.

**Jaguar** is the largest, most powerful wild cat of the Western Hemisphere. Jaguars live only in Mexico and



**Jade** is a stone widely used for fine carvings. A Chinese craftworker of the Ming dynasty (1368-1644) carved the jade bowl on the left. A modern jade pendant appears on the right.



A **Jagannath** on wheels moves through a crowd of thousands during a festival parade in the shrine city of Puri, India.



Central and South America. However, until the early 1900's, they also roamed the Southwestern United States. Jaguars live in forests, shrubby areas, and grasslands—wherever they can safely hide. They eat almost any kind of animal, including deer, fish, wild pigs, tapirs, turtles, and capybaras and other rodents. Jaguars hunt mainly on the ground and at night.

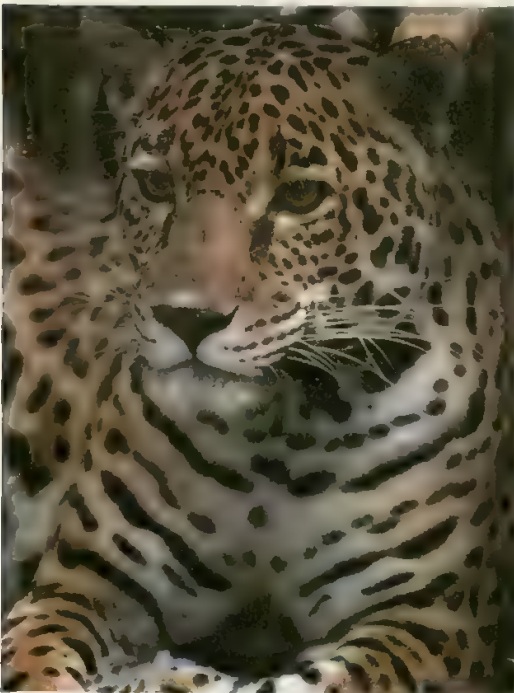
Jaguars measure from 1.5 to just over 2.5 metres long, including their 45- to 75-centimetre tail. They weigh from 70 to 135 kilograms. A jaguar has golden or brownish-yellow fur and many spots. The spots along its back and sides are light-coloured with dark borders and have a dark spot in the centre. The spots on its head, legs, and underside are black. Black jaguars live in South America. The jaguar symbolized strength and courage to the ancient Maya Indians, who considered the animal a god.

Male and female jaguars live together only during the mating season. After a pregnancy period of 95 to 110 days, the female gives birth to two, three, or four young. Newborn jaguars weigh between 0.7 and 1 kilogram. The young hunt with their mother during their first two years. They reach sexual maturity at the age of 3 and full adult size at 4.

The jaguar is a threatened species. It is abundant in some areas but faces serious danger from hunters and environmental changes. Several countries prohibit the import and export of jaguars or their pelts.

**Scientific classification.** The jaguar is a member of the cat family, Felidae. It is *Panthera onca*.

See also **Animal** (picture: Animals of the tropical forests).



**The jaguar** leads a solitary life. It is no longer found in the United States and is becoming increasingly rare in Mexico.

**Jaguarundi** is a wild cat of the Western Hemisphere. It has a long neck, a weasel-shaped head, short ears, stubby legs, and a long tail. The cat stands about 30 centimetres high at the shoulder, and is from 90 to 120 centimetres long. It weighs from 5 to 10 kilograms. Some jaguarundis are dark greyish-brown or black. Others are reddish-yellow. Jaguarundis are active at dawn, at dusk, and during the day. They eat rodents, birds, and farm animals. They live from southern United States to South America.

**Scientific classification.** The jaguarundi belongs to the cat family, Felidae. Its scientific name is *Felis yagouaroundi*.

**Jahan, Shah.** See **Shah Jahan**.

**Jahangir** (1569-1627) was the fourth Mughal emperor of India. During his reign, which lasted from 1605 until his death, he continued the expansion of the Mughal empire.

Jahangir was known as a patron of the arts. He was also known for his genuine sense of justice. This was marred by his outbursts of cruelty, and his dependence on drugs such as opium and alcohol. He could be genial one minute and violent the next. He was also criticized for giving way too often to his scheming Persian wife, *Nur Jahan* (Light of the World).

Jahangir was born in the palace city of Fatehpur Sikri, near Agra, in what is now the Indian state of Uttar Pradesh. His father was the Mughal emperor Akbar (see **Akbar**). Jahangir's father named him Muhammad Sultan Salim, but he took the title *Jahangir* (World-Conqueror) when he became emperor.

In 1614, Jahangir captured the last great Rajput fortress of Rajasthan, and two years later he took over half the kingdom of Ahmadnagar on the Deccan Plateau. He granted trade concessions to the British in return for their naval support against the Portuguese.

See also **Mughal Empire**.

**Jahangir Khan** (1963- ), a Pakistani squash player, became world champion in the 1980's. In 1990, Jahangir won the British Open Championship for the ninth time. This beat Australian Geoff Hunt's long-standing record and achieved a lifetime's ambition for Jahangir.

Jahangir Khan was born in Karachi. His father, Roshan Khan, won the 1956 British Open Squash Championship. Jahangir took up the sport at the age of 10. By 14, he was already the national junior champion of Pakistan. In 1979, at the age of 15, he won the World Amateur Championship. In 1981, he won both the British and World Open championships, although he was only 17.

See also **Squash**.

**Jahn, Helmut** (1940- ), is an American architect. Jahn's early works reflect the International Style of modern architecture. This style emphasizes steel, glass, and concrete, avoids ornamentation, and stresses straight lines and overlapping planes. Jahn adapted these principles in his Kemper Arena (1974) and Bartle Convention Center (1976), both in Kansas City, Missouri.

In about 1980, Jahn made a transition to a style known as *post-modern architecture*. Post-modern buildings often combine modern and historical styles. The multi-coloured *facade* (exterior) of Jahn's One South Wacker Drive office building (1982) in Chicago includes black window panels designed in the form of gigantic pillars that refer to ancient Greek columns. Jahn continued in the post-modern style in the State of Illinois Center





Helmut Jahn's State of Illinois Center in central Chicago was completed in 1985. The glass and steel office building encloses a large rotunda that is 49 metres in diameter.

(1985) in Chicago, a glass and steel office building formed around a great rotunda 49 metres in diameter.

Jahn was born in Nuremberg, Germany. He moved to the United States in 1966.

**Jail.** See Prison.

**Jainism** is an ancient religious and philosophical tradition of India. Jains are the sixth largest religious community of India. There are more than three million Indian Jains. As a wealthy religious community, Jains have had a powerful influence on the life and history of the Indian subcontinent. There are also communities of Jains in East Africa (mainly Kenya), Europe (mainly England), and the United States and Canada.

The Jain religion takes its name from the *Jina* (meaning victor or conqueror), a title given to 24 great teachers called *Tirthankaras* (ford-makers). These teachers demonstrated and taught the Jain path of purity and peace which leads to the highest spiritual liberation. Jainism may have begun in the Indus Valley civilization around 3000 B.C. Little is known about the first 22 teachers. The last two, Parsva (about 877-777 B.C.) and Mahavira (about 599-527 B.C.), lived and taught in northeastern India. They gained considerable followings.

**Mahavira** ("Great Hero"), the last of these great teachers, lived at the same time as the Buddha (see

Buddha). Like Buddha, Mahavira rejected the two Hindu notions of the social system of *caste* (divisions in the Hindu social system) and the rituals of sacrifice (see *Caste*; *Hinduism*). He was a prince, but left his home at the age of 30 to become an *ascetic* (a religious person who practises self-denial). He plucked out his hair, discarded his clothes, and wandered for 12½ years, fasting and practising severe penances in his search for truth. At the age of 42 he attained *enlightenment* (a state of divine experience, or understanding ultimate truth). For the next 30 years he travelled across northern India, teaching an austere ascetic path to purity and peace. The *Kalpa Sutra*, a Jain book that records the lives of the teachers, records that he died at Pava (modern Bihar) at the age of 72. He left more than 500,000 followers, including 50,000 monks and nuns.

**Sects and teaching.** Two major sects, or groups, developed within Jainism after the death of Mahavira. The *Digambara* (atmosphere-clad, or naked) and the *Svetambara* (white-clad) split about 360 B.C. A severe famine caused one group of Jain ascetics to migrate south. When these naked southern Jains returned north, the northern monks had begun to wear a piece of cloth over their genitals. A dispute followed, and the division was fixed by A.D. 79 or 82. Today most Jains in southern India follow the Digambara sects, while most in the north follow Svetambara sects.

Jains believe that all human beings, animals, insects, plants, and even earth, stones, fire, water, and air have living souls (*jiva*). Jains believe that the soul in its pure state is *omniscient* (all-knowing). Through contact with matter (*ajiva*) in this world, the soul becomes polluted and weighed down. Jains think of *karma* as fine "atomic particles" which cling to the soul (see *Karma*). Deeds of violence, greed, selfishness, dishonesty, sexual misconduct, and covetousness obscure the soul. Acts of gentleness and penance lighten and liberate it.

**Monks and nuns** represent the ideal of Jainism.



A broom and a bowl are important symbols of Jainism, and Jain holy men and women always carry them. The broom represents the Jain belief that all life is sacred. Holy men and women use it to sweep aside insects so they will not step on them. They carry bowls to collect food for themselves.



**Jain temples** are among the most beautiful in India. The carved pillar of the Tower of Fame in Chittorgarh, in Rajasthan, is one of two Jain pillars in the town. It was erected in the 1100's.





**Followers of Jainism** make a pilgrimage to Parasnath Hill, a holy site in Bihar, northern India.

Monks own no property except a broom, simple robes, bowls for food, and walking sticks. They may not live in buildings except for brief periods, and they must beg for all their food. They perform severe penances to "burn out" the karmic matter weighing down the soul. They believe this lightens and frees the soul, so that it can rise to a state of perfect peace and purity. To attain this state, Jains must pursue the "three jewels" of Right Faith, Right Knowledge, and Right Conduct. At the heart of Right Conduct for all Jains lie five vows. These are *ahimsa*, non-violence or non-injury; *satyā*, speaking the truth; *asteya*, not taking anything which has not been given; *brahmacharya*, chastity; and *aparigraha*, non-possession or detachment from people, places, and things.

Other members of the Jain community are the *laity* (people who are not monks or nuns). They assist the monks and nuns to live out their vows perfectly. Lay Jains can undertake business and other activities, while attempting to fulfil their religious vows as best they can.

**Jains in the community.** Jains vow not to kill any living creature. Monks and nuns carry brooms to sweep all surfaces to avoid crushing insects accidentally. The vow of *ahimsa*, or non-violence, has always been important to Jains. They keep to a vegetarian diet, and only do work which avoids any form of killing. *Ahimsa* for Jains requires positive acts of kindness, compassion, and charity. In India Jains use their wealth to set up and run hospitals and clinics for both humans and animals. They also establish schools and colleges, resthouses, and almshouses for people of all castes and creeds.

Wealthy Jains have made major contributions to education and the arts in India. Jain temples are among some of the most beautiful in India. These temples are often the focus of pilgrimages, particularly in the states of Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, and Karnataka in western India.

**Festivals.** The greatest Jain festival, Paryusana, takes place over an 8-10 day period about the end of August or the beginning of September. It is a time of fasting, repentance, and universal goodwill. On the last day, Samvatsari, Jains visit friends and relatives, to seek forgiveness for any harm or injury committed during the previous year. The other important modern festival for Jains is Mahavira Jayanti, which falls in March or April and is marked by meetings and processions celebrating Mahavira's birthday.

**Fasting until death.** Jains have an unusual attitude to death. A devout Jain who feels ready for death takes the vow of *sallekhana*. Supervised by monks and nuns, he or she meets death through a controlled process of fasting.

See also **India (Religion); Mahavira; Religion.**

**Jaipur** (pop. 1,454,678; met. area pop. 1,514,425) is a city in northwest India, lying 259 kilometres southwest of Delhi. For location, see **India** (political map). Jaipur is the capital of the state of Rajasthan.

Jaipur city's remarkable buildings include a palace, an open-air astronomical observatory, and the elegant five-storey building known as *Hawa Mahal* or Palace of Winds, from which women of the Maharaja's harem were able to peer out at the world unobserved through its 593 windows and peepholes. There is also a fort, a library, a museum, and two palaces. The University of Rajasthan, founded in 1947, is also in the city of Jaipur.

Jaipur is a walled city, surrounded on three sides by hills. It is laid out on a bold straight-line grid pattern. The buildings are covered in a distinctive rose-coloured wash given to them in the 1800's. Broad, treelined avenues give the city an orderly, open atmosphere.

Many transport routes converge on Jaipur, and the city is also a major trade centre. Local industries include engineering and metalworking, the weaving of carpets, blankets, and hosiery, and the manufacture of glass, shoes, and drugs. Its traditional craftworkers are known for the carving of stone, marble, and ivory, and the production of jewellery and enamel.



**Jaipur's Palace of Winds** has 593 windows, through which women in the Maharaja's harem could peer out at the world



**Jakarta** (pop. 6,761,886) is the capital and largest city of Indonesia. It is also the country's chief economic centre. When Indonesia was a Dutch colony, the city was called *Batavia*. The name Jakarta comes from *Jayakarta*, its old name, which means "Invincible and prosperous." It was formerly spelt *Djakarta*. Jakarta is situated on the north coast of the western end of Java, on the Bay of Jakarta where the Ciliwung River flows into the Java Sea. For location, see Indonesia (map).

Jakarta has a hot humid climate because it is close to the equator. Its average rainfall is about 200 centimetres. There is a dry season from July to September. During the rest of the year the city often has heavy tropical downpours.

Much of Jakarta is only a few metres above sea level. The city has been built on former swamp land.

### City

Greater Jakarta is the capital of the Republic of Indonesia. It has the status of a province and a special territory. It is divided into five administrative regions: Central Jakarta, East Jakarta, West Jakarta, North Jakarta, and South Jakarta. The territory covers 650 square kilometres. Jakarta is a vast sprawling city. The layout of the metropolitan area as it exists today can be understood best from the history of its development. The original Dutch settlement grew up around the port at the mouth of the Ciliwung River in the 1600's. This area is now known as Kota.

By the 1880's, the harbour at Kota had silted up. The Dutch then built a new port at Tanjung Priok about 10 kilometres to the east. Tanjung Priok was linked with Kota by a road, a railway, and a canal. But for a long time there were few houses along these transport routes. To the south there were some houses between Kota and the city square then known as Koningsplein. Today, the

square is known as *Medan Merdeka* (Freedom Square), and is the centre of Jakarta's most modern buildings. South of the square are large busy streets lined with multistorey hotels and office blocks.

In the late 1800's, Weltevreden, now called Gambir, was already a built-up area. But the rest of what is now Jakarta was largely rural. New suburbs to the south of Koningsplein, such as Menteng and Gondangdia, were developed in the 1900's. Today, they are fashionable suburbs.

In August 1948, the Dutch colonial government approved plans for a satellite city in the district known as Kebayoran. Called Kebayoran Baru, it is now a well-known residential suburb. Jakarta has continued to expand steadily to the south.

**Places of interest.** In Medan Merdeka stands Jakarta's outstanding landmark, the National Monument, a marble obelisk 137 metres high, on top of which is a flame covered with 35 kilograms of gold. In the base is the Museum of National Struggle. The monument represents Indonesian independence, proclaimed on Aug. 17, 1945. This obelisk is one of a number of monuments built during the fiercely nationalistic time of President Sukarno, in the late 1950's and early 1960's.

Medan Merdeka is surrounded by government buildings. On the north side is the presidential palace, *Istana Merdeka* (Freedom Palace), the official palace of the president of Indonesia. In colonial days it was the residence of the Dutch governor general. It was here that the transfer of sovereignty took place on Dec. 27, 1949, when the Dutch flag was lowered and the Indonesian flag raised over the palace.

On the west side of Medan Merdeka is the National Museum. This was established by the Dutch in 1778. Its building is popularly known as *Gedung Gajah* (Elephant Building) from the elephant sculpture standing in front of it. This statue was presented by a king of Thailand in 1871. The museum has comprehensive collections of Asian art, particularly sculptures from the Hindu and Buddhist periods in Java. It also has Muslim tombstones, examples of handicrafts from different parts of Indonesia, and a library with thousands of manuscripts in Javanese, Arabic, Malay, and other languages.

In addition to the National Monument in Merdeka Square, President Sukarno was also responsible for many of the landmarks that can be seen in Jakarta today. His aim was to impress on the world that Jakarta was the equal of any other modern great city. Statues put up by him include the Liberation of West Irian monument in Lapangan Banteng and the "Welcome" statue near the Hotel Indonesia. The multistorey modern hotel was also one of Sukarno's projects.

Other monuments put up by Sukarno include the vast Istiqlal Mosque and the Asian Games Complex at Senayan. He was also responsible for the erection of the Sarinah Department Store and the reconstruction of the Senen Market.

Government projects of more recent origin include the *Taman Mini*, or Indonesia in Miniature Park, put up by the wife of President Suharto. This park presents the great diversity of the 27 different provinces of Indonesia, particularly as regards architecture. There is an orchid garden and an aviary. It also has recreational grounds, restaurants, and a swimming pool. Entertainment is of-



**Modern buildings** have reshaped the city skyline along the Husni Thamrin Road leading to the Welcome Monument.



**Spacious well-planned squares**, such as Fata Lillah Square, right, are a feature of Jakarta. Such squares provide pleasant open spaces for city workers and residents.



ferred in the vast cinema theatre complex called *Keong Mas* (golden snail). There are museums devoted to ceramics, postage stamps, puppets, and textiles.

Located in one of the city's residential areas is Jalan Surabaya, a road known for its interesting market. All kinds of old goods, including porcelain and some genuine antiques, are sold in the market.

Jakarta's largest recreation park is the Jaya Ancol Recreation Park. It is built on reclaimed land in the Bay of Jakarta. It has an amusement park called *Dunia Fantasi* (fantasy world). It also has swimming pools, an artificial lagoon for boating, salt and freshwater aquariums, and restaurants. Dolphins and sea lions perform daily for the public.

There are several beach resorts near Jakarta, where visitors can enjoy boating, fishing, and swimming. Visitors can also make boat trips to some of the Thousand Islands (*Pulau Seribu*) offshore, which have facilities for skin divers.

Memories of the Dutch past are evoked in the old town, Kota. The Dutch Town Hall, built in 1627, had dungeons built into its basement. In the 1970s, the old town hall was turned into the Jakarta Historical Museum, and was made the focus of a plan to restore old parts of the city. It has on display historical documents, furniture, and porcelain from the time of Dutch rule. The Maritime Museum is housed in two warehouses, all that is left of the first Dutch East India Company fort in Java. In the same area is Sunda Kelpa, known better as the *Pasar Ikan* (fish market). This is the site of the original harbour of Jakarta, before the Dutch came. It now serves fishing vessels and many inter-island sailing vessels.

**People.** Jakarta is a crowded city. The density of population is 12,288 people per square kilometre. Average population growth is over 3 per cent a year.

People in Jakarta, as elsewhere in Indonesia, are free to choose their religion. About 85 per cent of the population are Muslims. Protestant Christians make up 6 per cent, and Roman Catholics 5 per cent. Buddhists are about 4 per cent of the population.

The local language is the Jakarta dialect of Indonesian, formerly called *Betawi*, and now known as *Dialek*

*Jakarta*. However, as elsewhere in Indonesia, standard Indonesian is spoken by all the Indonesians living in Jakarta.

Jakarta is the most cosmopolitan city in Indonesia. Its inhabitants include people from all parts of Indonesia, and from other countries. The foreign embassies and consulates are concentrated in Jakarta.

**Education.** As the capital of the Netherlands Indies, Jakarta (then Batavia) became a centre of learning. In 1851, the Dutch established a school of medicine there. The government Bureau for Popular Literature (*Balai Pustaka*) was established in 1908 to publish books in Indonesian languages. In 1926, the Dutch established a law school. In 1940, they established a school of arts. Now there are many universities and other higher educational institutions there. The best known is the University of Indonesia. Other institutions of higher education include the Christian University of Indonesia and the National University.

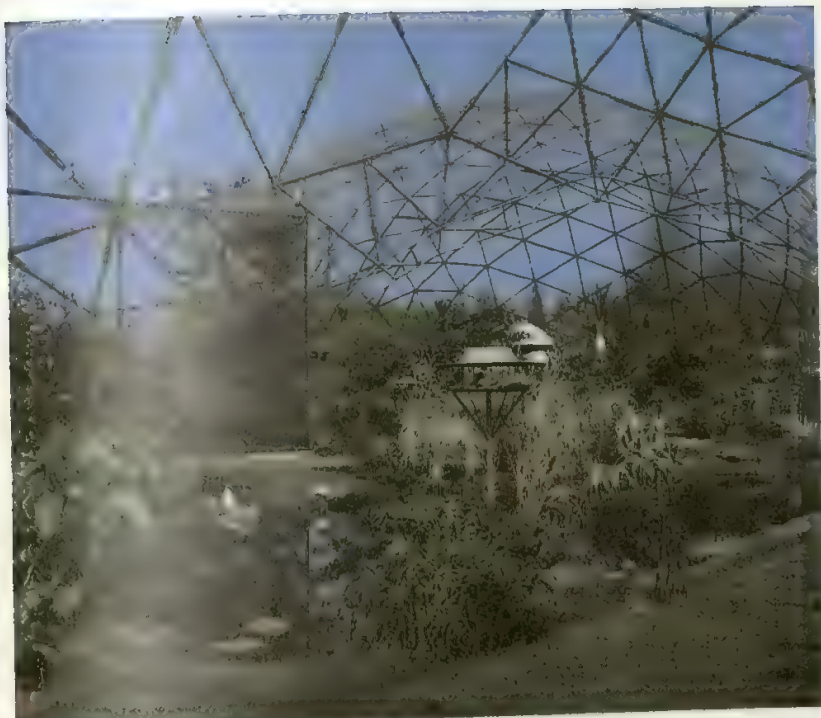
**Economy.** Jakarta is the economic centre of Indonesia. It has the headquarters of the state-owned trading corporations, and most of Indonesia's private companies, locally owned or foreign, are based there.

Factories in Jakarta process food and manufacture glassware, machinery, margarine, paper, rubber goods, soap, textiles, and other products. The first industrial estate in Indonesia was established at Pulogadung, 15 kilometres from Tanjung Priok. In addition there are breweries and iron foundries.

**Transportation.** The harbour of Tanjung Priok handles a large proportion of the country's foreign trade. Most of the Indonesian shipping lines, serving the islands of Indonesia and overseas ports, are based in Jakarta. The city has a modern international airport, the Sukarno-Hatta Airport.

Extensive road and railway systems link Jakarta with other parts of Java. The city's streets are crowded with cars, buses, taxis, and lorries. Traffic jams occur regularly during the morning and evening rush hours. The *becaks* (passenger-carrying tricycles) that were once part of Jakarta's transport system have been banned gradually from most parts of the city. In 1990, the provin-





**Bird-lovers enjoy visiting the Bird Park**, one of Jakarta's main recreational attractions, which has well-stocked aviaries, and attractive gardens.

cial government banned them from Jakarta altogether. They were considered inhuman for the peddlers, and they interfered with the flow of motorized traffic.

### History

The place where Jakarta stands has had human settlements from prehistoric times. There is evidence of a Hindu-Javanese kingdom existing there in the A.D. 400's. In the 1100's, the site became a port, known as Sunda Kalapa. Portuguese fleets interested in trade had visited the region in 1509. The Portuguese tried to establish a trading post at Sunda Kalapa in 1522. But before they could do so the neighbouring Muslim state of Banten captured the area, and renamed it *Jayakarta*.

In the early 1600's, the prince of Jayakarta allowed the Dutch East India Company to build a warehouse in Jayakarta. In 1619, Jan Pieterszoon Coen took over as governor general of the company's possessions in Asia. In the same year he captured Jayakarta, which the Dutch renamed *Batavia*. The Dutch resisted attacks from Banten and from Mataram. For more than 300 years, Batavia was the base for Dutch expansion through the East Indies, as Indonesia was then called.

In this low-lying, swampy area the Dutch set out to recreate a town like those they knew at home. They straightened out the Ciliwung to make a main canal, so that vessels could sail right into their settlements. They cut other canals around and through the town. Alongside these canals they built brick houses. Over the years the canals became polluted with rubbish and sewage.

Batavia was infamous as one of the unhealthiest cities on earth. In the 1820's, of every 1,000 Europeans living there, 230 died in a year. When medical research revealed that malaria was spread by mosquitoes, measures were taken to prevent them breeding in local

swamps. Better hygiene was also introduced and the death rate fell sharply. By the early 1900's, only 30 out of 1,000 Europeans died each year.

From 1745 the governor general had a country house in the cool of the hills at Bogor, which was known to the Dutch as Buitenzorg. In the 1930's, the Dutch decided to transfer their capital from the low-lying, swampy Batavia to Bandung, a much healthier site up in the hills. But this was forestalled by the Japanese invasion in 1942.

During the Japanese occupation of the country, they changed the name of Batavia to *Jakarta*. In 1959, the Indonesian government made a decision that Jakarta would be the permanent capital of the country.

Ali Sadikin, a former naval commander, was governor of Jakarta from 1966 to 1977. He brought to the task the



**The Dutch built European-style buildings in Batavia**, now Jakarta. A Dutch church is shown in this 1793 painting from the colonial period.





Old-style wooden and bamboo houses are still plentiful in Jakarta. The Dutch-built canals and boats are still used by some local people.

disciplined efficiency of a trained naval officer, and was the most successful governor Jakarta has had. He was appointed by President Sukarno. But it was under the favourable economic conditions brought by President Suharto that Ali Sadikin was able to achieve most. Ali Sadikin built up a well-regulated urban system based on modern highways flanked by imposing buildings. He completed a number of Sukarno's projects, such as the Istiqlal Mosque, which was at the time the largest mosque in the world. He also completed the parliament buildings at Senayan, as well as several shopping centres. Under Ali Sadikin's regime, hotels were built with private capital. He improved roads and public transport. Telephones and the water supply were also improved.

The problem for Jakarta has long been its ever-increasing population. When the Dutch took over in 1619, the population was 10,000. In 1850, the population was less than 70,000 in the town. By 1935, it was about 435,000. At the end of World War II in 1945, it was 844,000. By 1965, the population had swollen to nearly 4 million, and by 1976 it was nearly 6 million. In 1970, Ali Sadikin had declared Jakarta a "closed city" for immigrants, and residents were required to carry identity cards. But these administrative measures have proved ineffective in discouraging Indonesians from coming to live in Jakarta. The population has continued to grow.

See also Indonesia: Java.

**Jakobovits, Lord** (1921- ), Sir Immanuel Jakobovits, a Jewish religious leader, was chief rabbi of the United Hebrew Congregation of the British Commonwealth of Nations from 1967 to 1991. He was born in Königsberg, Germany, and was the son of a rabbi. He moved to England in 1936 and studied at Jews' College, London, and at London University. During World War II (1939-1945), he ministered to three London synagogues. He was chief rabbi of Ireland from 1949 to 1958 and rabbi of the Fifth Avenue Synagogue, New York City, from 1958 to 1967. He was knighted in 1981.

**Jallianwala Bagh massacre** took place at Amritsar in the Punjab, India, in April 1919. Earlier that year, the civil disobedience campaign against United Kingdom

(UK) rule led by Mohandas Gandhi had caused riots in the Punjab. At Amritsar, on April 10, a mob killed four Europeans, attacked a woman missionary, and burned property. Alarmed UK civil authorities called in the army.

General R. E. H. Dyer arrived with UK and Indian troops from Lahore on April 11. He imposed a night curfew and banned public meetings. On April 13, a crowd, estimated at 20,000, gathered in the Jallianwala Bagh, a walled garden. Many of them were villagers, who had come to celebrate a religious festival and were using the garden as a resting place. A political speaker began to address them. Dyer mustered 50 Indian soldiers, got them into position, and ordered them to open fire, without warning the people to disperse. In 10 minutes, 379 Indians were dead and 1,208 were wounded. They were not attended to until the next morning. A committee of inquiry held that Dyer acted beyond the needs of the situation and with little humanity. Dyer resigned. But, as a result of the massacre, Indians lost faith in UK justice.

**Jam and jelly** are sweet, thick spreads made from fruit. Jam is made from both fruit juice and fruit pulp. The pulp makes jam look cloudy. Jelly is made from fruit juice and has a clear appearance.

Jam and jelly are made from many kinds of fruit, including apples, apricots, blackberries, blackcurrants, cherries, grapes, oranges, peaches, raspberries, and strawberries. The spreads are usually eaten on bread, rolls, and crackers. They are also used as a filling for cakes. The sugar in jam and jelly provides a good source of energy.

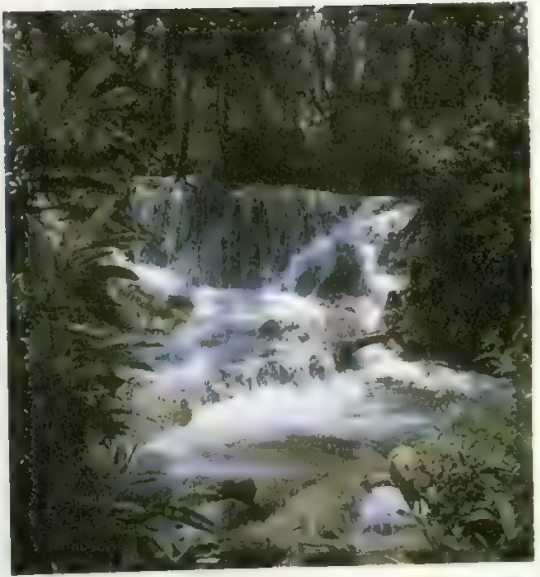
The proper firmness of jam and jelly is achieved by mixing sugar and a thickener with fruit juice that has a high acid content, and then boiling the mixture. *Pectin*, a carbohydrate found in fruit, is the most commonly used thickener (see *Pectin*).

Jam and jelly serve as a means of preserving fruit because their high sugar content allows them to be stored at room temperature for months without spoiling. However, uncooked or low-sugar jam and jelly must be refrigerated because they do not contain enough sugar to prevent them from spoiling.





The national stadium in Kingston is the venue for major sporting events and Jamaica's Independence Day celebrations.



Dunn's River Falls, near Ocho Rios, is a favourite beauty spot with tourists. It is one of Jamaica's many lovely waterfalls.

**Jamaica** is an independent island country in the Caribbean Sea. It is part of the West Indies, a region of island and mainland territories on the western edge of the Atlantic Ocean. Jamaica is the third largest island in the *archipelago* (chain of islands) called the Greater Antilles. It is also the largest of the Caribbean countries belonging to the Commonwealth of Nations. (See **Commonwealth of Nations**.)

Jamaica lies about 145 kilometres south of Cuba. Its pleasant climate and beautiful beaches attract hundreds of thousands of foreign visitors each year, but Jamaica does not depend on tourism alone. It is a leading producer of *bauxite*, the ore from which aluminium is obtained. The island is also famous for its bananas, sugar, and rum.

Kingston, the capital city, chief port, and seat of government, is located on Jamaica's southeast coast. It is a bustling city, larger in area than many Caribbean islands, and the heart of Jamaica's commerce, culture, and industry.

### Government

Jamaica is a constitutional monarchy. The reigning sovereign of the United Kingdom (UK) is its ceremonial head of state. A governor general, whose powers and duties are also largely ceremonial, represents the UK sovereign. The governor general formally appoints the prime minister and the other government ministers. The prime minister is usually the chosen leader of the majority political party in Jamaica's parliament and advises the governor general over choosing the other ministers. The governor general must sign all parliamentary bills before they can become law.

**Parliament.** Jamaica's parliament is *bicameral* (consists of two chambers). The lower house is the 60-member House of Representatives and the upper house

is the 21-member Senate. Members of the House of Representatives are elected by the people. The political party with the majority of representatives forms the government. General elections must be held every five years by law. The governor general appoints all 21 members of the Senate: 13 on the advice of the prime minister and 8 on the recommendation of the leader of the opposition. Any Jamaican citizen aged 21 or over who has lived in Jamaica for at least a year before an election may be a candidate for the House of Representatives. All Jamaicans aged 18 or more have the right to vote.

**Local government.** For local government, Jamaica is divided into 14 administrative areas called *parishes*.

### Facts in brief about Jamaica

**Capital:** Kingston.

**Official language:** English.

**Area:** 10,990 km<sup>2</sup>. *Greatest distances*—east-west, 235 km; north-south, 82 km.

**Elevation:** *Highest*—Blue Mountain Peak, 2,256 m above sea level. *Lowest*—sea level, along the coast.

**Population:** *Estimated 1996 population*—2,572,000; density, 234 people per km<sup>2</sup>; distribution, 55 per cent urban, 45 per cent rural. *1991 census*—2,374,193. *Estimated 2001 population*—2,708,000.

**Chief products:** *Agriculture*—bananas, cacao, citrus fruit, coconuts, coffee, sugar cane. *Manufacturing and processing*—alumina, cement, chemicals, clothing, machinery, petroleum products, rum, sugar. *Mining*—bauxite, gypsum.

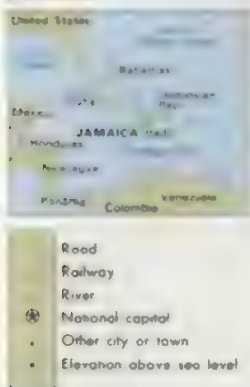
**National anthem:** "Jamaica."

**Flag:** A gold diagonal cross with black triangular side panels, and green triangular panels at top and bottom. The gold stands for sunlight and mineral wealth, the black for hardships of the past and future, and the green for hope and agricultural wealth. Adopted 1962. See **Flag** (picture: Flags of the Americas).

**Money:** *Currency unit*—Jamaican dollar. One dollar=100 cents.



## Jamaica



Each parish is divided into *districts*, and the elected representatives of the districts in a parish sit on a body called a *parish council*. Council members are elected for two-year terms. The responsibilities of each parish council include provision and maintenance of the local public water supply, electricity, fire safety, and roads within the parish.

### People

The Jamaican population is one of the most varied in the world. For Jamaica's total population, see the *Facts in brief* table with this article. Most Jamaicans are of African descent. Many others are descended from Indians, Chinese, Syrians, Portuguese, Germans, and Britons. However, as a result of intermarriage between the different ethnic elements, many people cannot accurately lay claim to a specific ethnic origin.

Experts estimate that people of African origin constitute 75 per cent of the population, people of mixed ethnic types make up 22 per cent, and all other ethnic groups account for 3 per cent. The African elements of the population are descendants of Africans brought to Jamaica as slaves. The Indians are descendants of *indentured* East Indians brought in after slavery was abolished in the 1800s. Indentured workers are workers held to a contract by a master.

Kingston, Spanish Town, Montego Bay, and May Pen are the largest population centres. In some parts of Jamaica's cities, high unemployment has led to poverty, drug abuse, and violent crime.

**Education.** Jamaica has one of the most developed systems of education in the West Indies. About 98 per cent of Jamaicans can read and write. At the age of 6 to 6½, children enter grade one of their primary school and leave grade six at the age of 12. Secondary-school students sit the 13-plus examination. Those who pass enter the technical and vocational programmes.

There are 11 teachers' colleges, one polytechnic (the College of Arts, Science, and Technology), one agricultural institute (the School of Agriculture), and the University of the West Indies (UWI), Mona Campus, near Kingston. The Norman Manley Law School is located at the Mona Campus.

Education in state-run primary and secondary schools as well as teachers' colleges is free. It is subsidized by the state in the other post-secondary institutions. There are also private primary and secondary schools.

**Religion.** Some experts suggest that there are more than 100 Christian denominations in Jamaica. The Church of God and its offshoots are the largest Christian group. The next three largest memberships include the Anglicans, Presbyterians, and Roman Catholics. Other religious groupings include Quakers, Methodists, Baptists, Seventh-day Adventists, Moravians, and Jehovah's Witnesses. There are also a few members of the Ethiopian Orthodox Church. Among non-Christians there is a strong Hindu community. Some observers see the Rastafarian movement as a religion. Others say it is a cult.

**Rastafarians** believe in the divinity of Haile Selassie, the deceased emperor of Ethiopia, whom they call Ras Tafari Makonnen. They also believe in peace, love, and brotherhood of all mankind and in nonviolence. In accordance with the teachings of the Jamaican activist Marcus Garvey, who said that blacks should consider Africa their home, Rastafarians feel themselves Africans, not Jamaicans. They think of themselves as being in exile and call Jamaica Babylon, comparing it to the biblical city in which the Jews were exiled. See Garvey, Marcus; Rastafarians.

**Language.** English is the official language. But all Jamaicans speak a "Jamaicanized" form of English often called *patois*. Poor or uneducated Jamaicans speak only *patois* but understand standard English. Educated people speak *patois* in informal conversation.

### Way of life

About a third of Jamaica's population work in agriculture, either as owners of smallholdings or working on large sugar and banana plantations. Many people grow just enough food to feed themselves and their family. Many Jamaican families own small factories that form the core of the island's manufacturing industries and provide local employment.

**Food.** The Jamaican diet consists mainly of fish, poultry, rice, vegetables, and fruit. National dishes include *ackee* and *saltfish* (a dish of soft, savoury fruit and fish



Jamaica's climate is ideal for growing sugar cane. Machines in a processing plant crush the cane to extract the juice from which sugar is made.

preserved by salting and drying) and chicken with rice and peas. *Jerk pork*, fish, and chicken are also popular. In these dishes the meat or fish is highly spiced.

**Housing.** Wealthy Jamaicans live in concrete-built houses in landscaped surroundings. City-dwellers on average incomes have smaller houses built of concrete or wood. Poor people live in small wooden houses. In areas where river sand is available, the structure of the houses may consist of *wattle and daub* (a wooden frame plastered over with a mixture of sand and cement). Housing is in short supply in the urban centres, and many people live in overcrowded apartment buildings. The poorest people, who cannot afford to pay rent, may build makeshift homes from whatever is available on vacant land and live as squatters.

**Arts and festivals.** Jamaica's most significant artistic contribution to the world has been its music. Most people in other countries associate *reggae* with Jamaica. Many people think the greatest reggae musicians were Bob Marley and the Wailers and Jimmy Cliff (see *Marley, Bob; Reggae*). *Soca*, another musical form, comes from Trinidad and is rooted in calypso. But it has gained international popularity through such Jamaican musicians as Byron Lee and the Dragoners.

An internationally famous annual reggae festival, called Reggae Sunsplash, is held over several days at Jarrett Park, Montego Bay. Around Christmas, a street festival called *Jonkonnu* takes place. The festival is distinguished by street parades in which people dress up in masks. The festival also includes dancing and singing. Since 1989, Jamaica has played host to a carnival, similar to the Trinidad carnival. It attracts visitors from all over the world. Around Easter, an annual arts festival takes place at the Ward Theatre, Kingston. It features plays and *skits* (satirical sketches) written in Jamaican English. The Ward Theatre also stages an annual Christmas pantomime. The National Dance Group of Jamaica is a world-famous dance company.

**Sport.** Cricket, Jamaica's national game, is played competitively at all levels, within and between schools

and within and between parishes. Association football (soccer), played competitively among secondary schools and at inter-island level, attracts many participants and spectators. Rounders, a game similar to American baseball, is popular among schoolchildren. Boxing, volleyball, netball, horse racing, polo, golf, and river and deep-sea fishing are also important sports.

### Land

Jamaica is the third largest island in the Caribbean Sea, after Cuba and Hispaniola (see map). It is one of a group called the Greater Antilles. Jamaica occupies an area of 10,990 square kilometres. Its maximum dimensions are 235 kilometres from east to west and 82 kilometres from north to south. The regions along the northern and southern coasts of the island are mainly low-lying. In the centre lie Jamaica's mountains, running east to west. The Blue Mountains in the east rise to 2,256 metres above sea level at Blue Mountain Peak.

Swift-flowing rivers run north and south from the mountains. Jamaica has many springs, streams, and waterfalls. The Dunns River Falls and the mineral springs at Bath are popular with tourists. Much of Jamaica is covered with limestone. One remote limestone region in the northwest of the island has many ridges and depressions known as *cockpits*. The area is called the Cockpit country.

**Climate.** Jamaica has a tropical climate. The average annual temperature is 27 °C and the average yearly rainfall is about 280 centimetres. The north and east receive more rain than the south. This is because the Blue Mountains hinder the north and east winds, Jamaica's main rain-bearing winds, as they blow southward over the island. Kingston, lying on the southeast coast in the rain shadow of the mountains, receives 90 to 115 centimetres of rain a year. From June to August, daytime temperatures there may rise above 32 °C. Places on Jamaica's northern coast receive about 250 centimetres of rain annually. The greatest amount of rain falls in the mountains. The summits of the Blue Mountains experience



a yearly rainfall of 508 centimetres, with nighttime temperatures sometimes falling to 4 °C.

Most rain in Jamaica falls between September and November, but rainfall also occurs in April and May. The highest temperatures and driest conditions occur in June, July, and August, but this is also the season of tropical storms and hurricanes.

### Economy

Agriculture, mining, manufacturing, and tourism are the mainstays of Jamaica's economy. Jamaica's chief trading partners are the United States, the United Kingdom, and Canada.

**Agriculture.** Agriculture employs between 27 and 30 per cent of the labour force. Sugar cane, banana, citrus fruit, *cacao* (cocoa beans), and coffee are the major cash crops. Other farm products include livestock for meat, coconuts, rice, soybeans, yams and other vegetables, and allspice. Jamaica's agriculture is at the mercy of the climate, especially hurricanes. In 1988, Hurricane Gilbert destroyed most of the banana plantations and citrus and other fruit trees. It also flooded valuable agricultural land.

**Mining** and its related industries produce 60 per cent of Jamaica's total earnings from exports, but only 1 per cent of the labour force works in mining. Bauxite, the principal mineral and a chief source of aluminium, is found near the surface. Miners extract it by the *open cast* method (see **Bauxite**; **Mining** [Open-cast mining]). Jamaica has the world's largest deposit of bauxite and at the present rate of extraction the supply is estimated to last another 100 years. Other minerals of commercial value include gypsum and marble.

Government attempts to diversify the economy even more have led to the granting of licences to various

companies to drill for oil or search for gold in areas of potential deposits.

**Tourism**, a major source of foreign exchange, contributes hundreds of millions of U.S. dollars annually to the economy. Jamaica's tropical climate, areas of natural beauty, and cultural activities attract visitors from all over the world.

**Transportation.** Jamaica has a well-developed road system. Most of the roads are paved. There are about 19,300 kilometres of roads of which 8,000 kilometres are main roads. The system of rail transportation has only one line linking Kingston to Montego Bay. This line is used primarily for passenger services.

Jamaica's chief air terminals are the Norman Manley International Airport in Kingston and the Donald Sangster International Airport in Montego Bay. They are served by most of the major U.S., UK, Canadian, and Caribbean airlines. Smaller airports are used for internal transportation of goods and passengers.

Kingston is the largest port. The harbour there is virtually landlocked and is among the world's finest natural harbours. Kingston has four container berths. Smaller ports are located in Montego Bay, Ocho Rios, Oracabessa (St. Mary), and Port Antonio. These ports ship mostly bauxite and bananas but they are also important harbours for cruise ships.

**Communication.** There are 10 privately owned and licensed radio stations and 2 television stations in Jamaica. Three daily newspapers are published in Jamaica.

### History

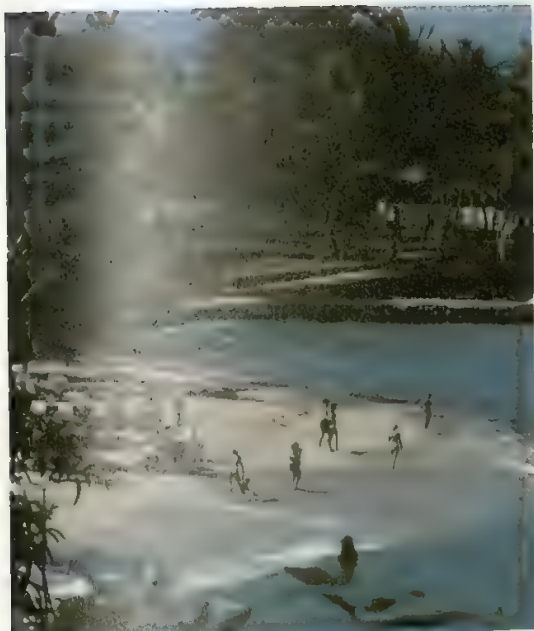
Arawak Indians were the earliest inhabitants of Jamaica. They had been living there for hundreds of years by the time Christopher Columbus landed at Discovery Bay on May 3, 1494, and claimed the island for Spain. The Spaniards considered colonizing Jamaica but abandoned the idea when they failed to find gold. However, they did use the island as a supply base for expeditions to North America and began building two towns. The first was abandoned, but the second, Villa de la Vega, founded in 1523, later became Spanish Town, Jamaica's first capital. The Spaniards enslaved the Arawak and forced them to haul heavy building materials. Overwork, maltreatment, and disease killed the 60,000 to 80,000 Arawak within 50 years of the arrival of the Spaniards. In the later 1500's, the Spaniards began importing black slaves from Africa.

In 1655, the British captured Jamaica from the Spaniards. The new British settlers imported large numbers of Africans as slaves to work on the sugar cane plantations. Sugar became the mainstay of the Jamaican economy.

During the British invasion of the island, many African slaves escaped into the hills and hid in the Cockpit country. These escaped slaves, called *Maroons*, raided British plantations and kept up a strong resistance to British rule. Many African slaves imported by the British after 1655 also joined the Maroons. It was not until 1738 that the British colonial authorities signed a peace treaty with Cudjoe, a Maroon chief. In the 1670's, British pirates based themselves in Jamaica, notably Port Royal, from where they attacked and plundered Spanish ports and treasure ships.



**Jamaica** is one of the world's leading producers of bauxite. Miners remove the surface rock to gain access to the mineral.



**Jamaica's beautiful seaside resorts** and mild climate all year round attract thousands of tourists annually. Tourism is one of the country's leading economic activities.

Jamaica's importance as a sugar exporter and a slave market caused it to prosper during the 1700's. Kingston became the chief commercial centre. But the British colonial administration did little to ease social problems. In 1833, with the abolition of slavery, Jamaica's sugar industry hit a critical labour shortage. Without slaves, Jamaica's planters had to hire labourers. Many workers from India and China migrated to the island to work on limited contracts. Within 30 years, the sugar plantations collapsed, as a result of rising labour costs and a fall in European demand for sugar cane. Planters turned to growing bananas.

Most of the freed slaves became poverty-stricken subsistence farmers growing only enough food for their families. In the 1860's, black Jamaicans began to agitate for social and penal reform. Unrest exploded into violence at the Morant Bay Courthouse in October 1865. In an incident that became known as the Morant Bay Rebellion, protesters clashed with colonial government troops. Twenty people died and the courthouse was burned. The British governor arrested and hanged those whom he believed were the ringleaders. He also took other brutal reprisals against the island's population, for which he was recalled. Jamaica came under direct British rule as a crown colony and a new governor carried out the much needed reforms.

In 1872, Kingston became Jamaica's capital. In 1907, a serious earthquake and fire destroyed the city and caused the deaths of about 800 people. The colonial government rebuilt Kingston and improved it. In other ways, however, Jamaican's dissatisfaction with the colonial administration grew. From 1884 to 1938, the colonial authorities allowed Jamaicans to elect more and more representatives to the island's parliament.

In the 1930's, Jamaicans suffered economic hardships because of the Great Depression. They also wanted to get rid of what they considered to be an inefficient colonial government. Workers demanded better pay and working conditions. In 1938, a year of widespread riots caused by these political and economic stirrings, two workers' leaders, Alexander William Bustamante and Norman Washington Manley, founded Jamaica's first two trade unions. They also established political parties connected to the unions. These were the Jamaica Labour Party (JLP), led by Bustamante, and the People's National Party (PNP), under Manley. In 1944, the UK government granted Jamaica a Constitution that provided for a House of Representatives elected by all Jamaicans aged 21 or over. Bustamante's JLP won the first general election, held that year.

In 1958, Jamaica joined the West Indies Federation. But Jamaicans resented the federation's powers to levy taxes directly on the individual member states. In 1959, Jamaica achieved full internal self-government, with Bustamante again as premier. In a 1961 referendum, Jamaicans voted to bring their country out of the federation, and Jamaica became independent on August 6, 1962. The JLP remained in power for the next ten years. It aligned Jamaica with the West and tried to encourage foreign companies to invest in the island.

The PNP won power in 1972 and immediately introduced democratic socialist policies, including the *nationalization* (state ownership) of key industries and resources, the reform of agriculture, and the establishment of closer ties with Cuba. Global economic recession, a devalued currency, and the mismanagement of government affairs under Prime Minister Michael Manley (son of Norman Manley) led to major economic problems (see **Manley, Michael Norman**).

In 1980, the JLP returned to power under Edward Seaga. The JLP reversed the policies of the PNP, setting the country back on course as a free-market economy, severing links with Cuba, and once more aligning Jamaica with the West. The JLP sought to boost agriculture, manufacturing, and tourism, but it took harsh and unpopular measures in its efforts to achieve an economic revival. The damage caused by Hurricane Gilbert in 1988 was a great setback to such a recovery. In 1989, the PNP regained power under Michael Manley and retained it in 1993 under Percival J. Patterson.

**Related articles in World Book include:**

Aluminium  
Bustamante, Alexander  
William

Grenada (History)  
Morgan, Sir Henry  
Patterson, P. J.

#### Outline

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**Jambu** is the Malay name for a tree which bears an edible fruit called a *rose apple*. The fruit is so-called because it is shaped like an apple and tastes like rose-water. A rose apple is really a berry and contains one or two large seeds.

Jambu trees are cultivated in many parts of Malaysia and rose apples are also collected from trees growing wild. The trees grow up to 20 metres tall, are evergreen, and have leathery leaves. The leaves have distinct veins around their edges. Although the trees are evergreen, new leaves and flowers will normally only grow after a period of dry weather. The flowers grow in compact bunches and can be green, white, red, or pale yellow. Rose apples are eaten by monkeys, squirrels, birds, and fruit bats.

**Scientific classification.** Most Jambu belong to the myrtle family, Myrtaceae, genus *Eugenia*.

**James** was the name of two kings of England and Scotland, and of five kings of Scotland. All belonged to the House of Stuart.

**James I** (1566-1625) was the first Stuart king of England. He became James VI of Scotland in 1567 when his mother Mary, Queen of Scots, gave up that throne. When his cousin Elizabeth I died, he became King James I of England in 1603, and ruled both England and Scotland until his death. His son Charles I succeeded him.

James believed in the *divine right of kings*, the belief that kings get the right to rule from God, rather than from the consent of people. He set up a strong royal government in Scotland, but the English Parliament opposed his attempt to rule as absolute monarch in England. This dispute over who should have power continued under Charles I, and led to the English Civil War in 1642.

James supported the Anglican Church, and sponsored a translation of the Bible in 1611 that is now known as the King James Version. However, he persecuted certain Protestant groups such as the Puritans. Some of the Puritans migrated to America in 1620.

Jamestown, the first permanent English settlement in America, was named in his honour. But James showed an interest in colonies only in Northern Ireland, where he seized land from Irish Catholics and gave it to English and Scottish Protestants.

**James II** (1633-1701) reigned from 1685 to 1688. He succeeded his brother, Charles II. James, a Roman Catholic, favoured Catholics in his policies. This favouritism angered many English people. When James's wife had a son in June 1688, the prospect of another Catholic ruler united James's opponents. In the Glorious Revolution of 1688, James's Protestant daughter Mary and her husband, William of Orange, ruler of the Netherlands, became joint rulers. James fled to France and spent the rest of his life in exile.

James was a younger son of Charles I. As Duke of York, James served as admiral and head of the English Navy. English forces named New York City after him.

Five Stuart kings named James ruled Scotland from 1424 to 1542. They included James I (1394-1437), who ruled from 1424 to 1437; James II (1430-1460), who ruled from 1437 to 1460; James III (1451-1488), who ruled from 1460 to 1488; James IV (1473-1513), who ruled from 1488 to 1513; and James V (1512-1542), who ruled from 1513 to 1542.

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Mary (II) of England	
Mary, Queen of Scots	

**James, Cyril Lionel Robert** (1901-1989), was a distinguished Trinidadian writer. He was a powerful advocate of left-wing philosophy and one of the most versatile intellectuals of his generation.

James was born in Tunapuna, near Port-of-Spain. He started his writing career in the 1920's, editing the literary review *Trinidad*. He moved to England in 1936 and gained a reputation as a writer on cricket. He soon became involved in socialism and the Pan-Africanist movement, which strives for the unity of black people. He lived in the United States from 1939 until he was expelled in 1955 for his political activities, and he returned to England.

James's many books include the novel *Minty Alley* (1936) and *The Black Jacobins* (1938), a historical study of the Haitian revolutionary Toussaint L'Ouverture.

**James, Epistle of**, is a book of the New Testament of the Bible. It is one of eight letters called "General Epistles" because they were addressed to Christians in general. According to tradition, the Epistle was written by James, Jesus' brother and an early leader of the church in Jerusalem (see *James, Saint*). This James should not be confused with James, the son of Alphaeus, and James, the son of Zebedee, who were among the 12 apostles. However, not all scholars are convinced that James wrote the letter. Some believe that the author may have lived in Antioch because the epistle is written in Greek and seems to contain Greek ideas. Its purpose was to warn Christians that profession of faith cannot take the place of good deeds.

See also *Bible* (Books of the New Testament).

**James, Henry** (1843-1916), was one of America's greatest writers. In his short stories and novels, he created characters of great psychological complexity. His prose style changed over the course of his 50-year writing career. At first, James's style was straightforward and realistic, and he often sharply satirized manners and morals. Later, his style became complicated, and his basic realism became deepened by a rich, almost poetic symbolism. James also wrote literary criticism. His reviews, essays, and prefaces have established him as one of the most important theorists of fiction.

James was born in New York City into a wealthy family. His father was a religious philosopher and a friend of leading thinkers of the 1800's. His older brother, William, became a great philosopher and psychologist. James's father gave his five children an unusual education, which included long visits in Europe.

James never married. In the tale "The Lesson of the Master" (1888), he suggested that to be an artist, a person should be free of the obligations of family life. James devoted himself to his art, writing every day, but he still enjoyed a wide circle of social and literary friendships. James left America in his early 30's. He felt that the older and more socially complicated societies of Europe would offer him richer material for his fiction. In Paris, he befriended the most advanced European writers, including Gustave Flaubert, Ivan Turgenev, and

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Émile Zola. In 1876, James settled in England. He became a British subject in 1915 to show his support for the United Kingdom during World War I.

James's huge literary output includes 112 tales, 20 novels, 2 volumes of autobiography and part of a third, travel essays and books, nearly 3,000 pages of literary criticism, and 16 plays. James had only a few big successes with the reading public. His most popular works were the short novels *Daisy Miller* (1878) and *The Turn of the Screw* (1898). But critics almost always praised his work, except for his plays. James became a mentor to younger writers who considered themselves James's students and James himself "the Master." His three greatest novels were *The Wings of the Dove* (1902), *The Ambassadors* (1903), and *The Golden Bowl* (1904).

**James, Jesse** (1847-1882), became one of the most famous bank and train robbers in United States history. He led about 25 robberies in Missouri and several other states. The James gang also killed a number of people. Some writers described Jesse James as a hero who robbed only the rich. But he was really a vicious murderer and thief.

Jesse Woodson James was born in Clay County, Missouri, and was the son of a Baptist minister. During the American Civil War (1861-1865), he and his older brother, Frank, joined bands of killers and thieves led by Confederate sympathizers. After the war, Jesse and Frank James formed a new band with their cousins, the Youngers, and began to hold up trains, stagecoaches, and small banks. In 1871, banking officials hired the Pinkerton National Detective Agency to capture Jesse James. In 1875, a bomb thrown into his mother's house killed his stepbrother Archie Samuel and injured his mother. Some people believed that detectives had hurled the bomb, and that James was being unjustly persecuted.

In 1881, Governor Thomas Crittenden of Missouri offered a 5,000 U.S. dollars reward for the arrest of Frank or Jesse. Gang member Robert Ford believed he could collect the reward if he killed either brother, and shot Jesse in the head. Jesse died the same day, April 3, 1882, in St. Joseph, Missouri.

**James, P. D.** (1920- ), is a popular British writer of detective stories. She created the character of Scotland Yard Commander Adam Dalgliesh. A poet as well as a policeman, Dalgliesh brings intelligence and sensitivity to the cases he investigates. He has appeared in several novels, beginning with James's first novel, *Cover Her Face* (1962). Her other Dalgliesh novels include *Death of an Expert Witness* (1977), *A Taste for Death* (1986), and *Devices and Desires* (1990). James introduced Cordelia Gray, a young London private detective, in *An Unsuitable Job for a Woman* (1972). Gray also appears in *The Skull Beneath the Skin* (1982). James's books are noted for their well-constructed plots, strong characterization, psychological realism, and descriptive prose.



Jesse James

Phyllis Dorothy James was born in Oxford, England. She joined the British civil service in 1949, working first in hospital administration, and then in the criminal policy department. In 1991, P. D. James was created Baroness James of Holland Park.

**James, Saint**, was one of the leaders of the Christian church in Jerusalem during the first years after it was founded. He is referred to as Jesus' brother in the Bible (Gal. 1: 19), but the term "brother" can also mean "cousin" or "kinsman." Some documents record the tradition that the Jews called him "the Just," probably because of his strict observance of the law. The New Testament seldom speaks of James by name. Historians record that he was martyred about A.D. 62. This James should not be confused with James, the son of Alphaeus, and James, the son of Zebedee, who were among the 12 apostles. According to tradition, James wrote the Epistle of James in the New Testament. However, many scholars doubt that James actually wrote it. See **James, Epistle of**.

**James, William** (1842-1910), became the most widely-read American philosopher of the 1900's. With Charles Peirce and John Dewey, he led a philosophical movement called pragmatism (see **Pragmatism**).

**Early career.** James, the brother of novelist Henry James, was born in New York City. As a medical student at Harvard University, he studied anatomy and physiology under Louis Agassiz, the noted naturalist. Later, James's interests shifted to psychology and the relationship among experience, thinking, and conduct. His *The Principles of Psychology* (1890) is considered a classic.

James struggled to find his life's work. Depression over his inability to reach a decision led him to the verge of despair. He finally became convinced that people could devote their lives to finding new answers to such ancient questions as: Can human effort change the course of events? Does God exist? What difference would His existence make to people? What is the good life? How does a person's conviction about what is good affect his or her actions?

James's other works include a famous essay called "The Will to Believe" (1896), *Varieties of Religious Experience* (1902), *Pragmatism* (1907), and *The Meaning of Truth* (1909).

See also **Peirce, Charles S.**

**James the Greater, Saint**, was one of the 12 apostles of Jesus Christ. James is often called James the Greater to distinguish him from another apostle, James the Less. James the Greater was the brother of the apostle John. With John, he was one of the first disciples called to follow Jesus. James and John were fishermen who lived along the northern shore of the Sea of Galilee. Jesus called the brothers the "sons of thunder" (Mark 3: 17), apparently because of their rashness. James plays a significant part in all four Gospels of the Bible. He was the first of the apostles to be martyred. Of all the apostles, his martyrdom is the only one reported in the New Testament. Acts 12: 2 states that King Herod Agrippa I had him killed in the early A.D. 40's.

According to later tradition, the bones of James were taken to Santiago de Compostela in Spain. As a result, the town became an important pilgrimage centre during the Middle Ages. James's feast day is celebrated on July 25.

See also **Apostles**.



**James the Less, Saint**, was one of the 12 apostles of Jesus Christ. He is often called James the Less to distinguish him from another apostle, James the Greater. Tradition has associated James the Less with James the Younger, mentioned in the Bible (Mark 15: 40), and also with James the "brother of the Lord," a prominent figure in the Acts of the Apostles. However, many Biblical scholars believe that they are three different people.

James the Less is mentioned in all four lists of the apostles in the New Testament. He is not mentioned anywhere else in the Bible. His feast day is celebrated on May 3.

See also **Apostles**.

**Jamestown**, Virginia, was the first permanent English settlement in North America. On May 6, 1607, 105 adventurers in three ships stopped at Cape Henry, at the southern entrance to Chesapeake Bay, on the eastern coast of North America, after more than four months at sea. The day was April 26, according to the calendar then in use. Captain Christopher Newport commanded the ships, the *Susan Constant*, *Godspeed*, and *Discovery*.

The adventurers had been sent out by a group of London merchants and other interested people known as the Virginia Company of London (later shortened to Virginia Company. See **London Company**). They went to America mostly to search for treasure and also to spread Christianity among the Indians. Few of the men were able or willing to do manual labour or to grow farm products that could not be grown in England.

The three ships sailed up the James River from Cape Henry for about 95 kilometres. The adventurers landed on a little peninsula on the river on May 24 (then May 14) and established their settlement there. They named both the river and their settlement in honour of King James I of England. The site turned out to be a bad choice. The ground was swampy, and the drinking water impure. A meagre and unwholesome diet weakened the men, and about two-thirds of them soon died of malnutrition, malaria, pneumonia, and dysentery. Sharp contrasts of climate added to their problems.

The Jamestown settlement suffered one dreadful disaster after another. Captain John Smith held the group together when he took control from mid-1608 to mid-

1609. He forced the adventurers to stop searching for gold and silver and to start working for their survival, and he bought maize from the Indians. But an accident in 1609 forced Smith to return to England for treatment.

Fire, drought, Indian attacks, disease, starvation, and lack of another strong leader brought the settlement to its lowest ebb in the winter of 1609-1610. Later colonists called that winter "the starving time." The arrival of Governor Thomas West, Lord De La Warr, in 1610 with settlers and supplies saved Jamestown from abandonment.

In 1619, the first representative legislative assembly in the Western Hemisphere met in Jamestown. This assembly, called the *House of Burgesses*, served as a model for many of the lawmaking bodies in the United States (see **House of Burgesses**). Another important event of 1619 was the arrival of a Dutch ship at Jamestown with 20 blacks for sale. These Africans, and the thousands who followed them, would in time become slaves. Their labour helped to make the colony prosperous.

The site of the Jamestown settlement no longer stands on a peninsula. It now lies on an island, having been cut off from the mainland by water. Much of the original land has been washed away by tidal currents of the James River. For many years, only a few foundation stones and the ruined tower of a brick church stood as reminders of the settlement. But archaeologists have now found many relics of the original town.

In 1957, Virginia celebrated the 350th anniversary of the founding of Jamestown. The state built Jamestown Festival Park about 1 kilometre from the original site of Jamestown. The park has a reproduction of the area's first fort, Powhatan's lodge, and replicas of the ships that brought the first adventurers. Thousands of tourists visit these sites each year.

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**Jammu and Kashmir** is a state in the far north of the republic of India. The state is made up of three territories—Jammu, Kashmir, and Ladakh. The state is a mountainous area in the northwest Himalaya.

Both India and Pakistan claim ownership over parts of the state and, in 1965, the dispute led to war between the two countries. Jammu and Kashmir's boundaries remain in dispute. The winter capital is Jammu, and the summer capital is Srinagar.

### People and government

**People.** The state of Jammu and Kashmir is the largest of India's Himalayan states. It has three distinct regions: the Vale of Kashmir, which lies south of the Great Himalayan Axis; Jammu to the south of Kashmir; and Ladakh to the north of Kashmir.

The three regions differ in climate, geography, ethnic

### Facts in brief about Jammu and Kashmir

**Population:** 1991 estimate—7,718,700.

**Area:** 222,236 km<sup>2</sup>.

**Capitals:** Srinagar (summer), Jammu (winter).

**Largest cities:** Srinagar, Jammu, Leh, Gulmarg, Kargil.

**Chief products:** *Agriculture*—barley, rice, saffron, timber, wheat, wool. *Manufacturing*—carpets, handicrafts.



The ruins of the Old Church Tower in Jamestown mark the site of the first permanent English settlement in America.



**Jammu and Kashmir** is the most northerly state of India. It lies among the mountains of the Himalaya.

makeup, and culture. Jammu has a largely Hindu population. Kashmir is predominantly Muslim. The people of Ladakh have Tibetan ancestors, and the region is known as *Little Tibet*. The majority of Ladakhis are Buddhists, and their language, Ladakhi, is derived from Tibetan. Other languages spoken in the state include Kashmiri, Punjabi, and Urdu.

**Government.** The state of Jammu and Kashmir has a special position within India. Since 1956, the state has had its own constitution. The central government has direct control over defence, external affairs, and communications. It also influences matters of citizenship, supreme court jurisdiction, and emergency powers. The president of India appoints the governor of the state. Executive power rests with the chief minister and his council of ministers. The legislative assembly consists of 76 elected members from the constituencies. There is also a legislative council of 36 members.

The state has six elected representatives in the *Lok Sabha* (lower house) and four nominated members in the *Rajya Sabha* (upper house) of the Indian national parliament. There are 14 districts in Jammu and Kashmir.

### Economy

**Agriculture.** The vast majority of the population of Jammu and Kashmir depend on agriculture, but only 20 per cent of the state is cultivated. There is irrigation wherever possible, especially in Ladakh, where farmers build channels called *yara* to carry stream water to fields up to 8 kilometres away. Ladakh farmers can only cultivate areas close to streams and rivers.

Maize, rice, and wheat are the major crops. Barley, *bajra* (millet), and *jowar* (sorghum) are grown in some parts. Pulses such as beans, lentils, and peas are also important in market gardens and well-watered areas. Farmers grow a wide range of vegetables. Fruits grown includes mangoes, bananas, and oranges in Jammu, almonds, apples, cherries, peaches, and pears in Kashmir, and apricots and mulberries in Ladakh. The vale is also the only South Asian producer of *saffron*, a delicate food-colouring and flavouring agent extracted from the autumn crocus (see *Saffron*).

Because of the harshness of the climate and the inad-

equated rainfall, there is only one cropping season, from March to November. Many farmers raise livestock to supplement their income from crops. They drive goats, sheep, and yaks to alpine pastures at altitudes of more than 4,000 metres over the summer months. The high-quality goat's wool produced in the region is known as *pashmina* or cashmere wool (see *Cashmere*).

**Manufacturing.** Small-scale businesses dominate manufacturing in Kashmir. Handicraft products include blankets, brassware, carpets, papier-maché objects, and woollen shawls.

**Mining.** There are no commercially important mines. Some tin is mined. Local *lapis lazuli* (a turquoise semi-precious stone) is a traditional decoration for Ladakhi headdresses.

**Transportation.** Kashmir and Ladakh have air connections with other cities in India. There are airports at Jammu, Srinagar, and Leh. Bad winter weather often closes Srinagar and Leh. The railhead for Kashmir is Jammu which connects with other north Indian cities.

The Indian government has invested heavily in communications in the state. The Jawahar Tunnel, which links Jammu with the Vale of Kashmir, is one of the longest in Asia. Kashmir has over 11,000 kilometres of road. The journey from Srinagar to Leh takes two days and includes an overnight halt at Kargil.

**Tourism.** The Vale of Kashmir has been popular with travellers since Mughal times. Gulmarg and Pahalgam



**The festival of lamas** in Ladakh, northern Jammu and Kashmir. The religion of most people of Ladakh is Tibetan Buddhism.



attract large numbers of visitors. Skiing is popular in Kashmir, and trekking is an important source of income in both Kashmir and Ladakh.

### Land

**Location and description.** A 30-kilometre-long boundary with Punjab and a 300-kilometre boundary with Himachal Pradesh join the state of Jammu and Kashmir to the rest of India. The state has international boundaries with Pakistan to the west, and with Tibet and China to the north and northeast.

**Land features.** Jammu in the south is the borderland with the Punjab and the transitional zone between the plains and the mountains. The Siwalik Hills, a band of low uplands running northwest to southeast, have thin parched soils that are liable to erosion (see **Erosion**). Irrigation is limited, and the water table is often too deep for wells. The Siwaliks give onto the Pir Panjal, a mountain range with peaks that rise to about 5,000 metres. These mountains form the southern wall to the Vale of Kashmir. The Pir Panjal is a double range. The northern part stretches from Kishtwar to Kulu (in Himachal Pradesh) and divides the Chenab and Ravi rivers. The southern part (Dhaura Dhar) divides the Ravi and Beas rivers and continues north to Dalhousie.

The Vale of Kashmir lies between the Pir Panjal range and the High Himalaya at an average altitude of 1,600 metres (see **Himalaya**). It contains a number of lakes fed by the Jhelum and other rivers. Rising behind the Vale of Kashmir is the Great Himalaya, which rises in the west to Nanga Parbat (Naked Mountain, 8,125 metres).

To the north of the Great Himalaya lie the Zaskar and Ladakh ranges. The Indus River runs through Ladakh and between the Zaskar range to the south and the Ladakh range to the north. Both of these ranges have an average altitude of 5,000 metres. The Zaskar range forms the backbone of southern Ladakh. The Doda and Tsarap rivers breach it and flow north to the Indus River.

**Rivers and lakes.** The Indus, one of the great rivers

of Asia, rises in Tibet (see **Indus River**). It has carved very deep gorges in Jammu and Kashmir. The gorge at Gilgit is about 6,000 metres deep. Other rivers include the Jhelum, Chenab, Ravi, and Beas, all of which go on to flow across the Punjab. The Doda, Shyok, Tsarap, and Zaskar are important rivers in Ladakh.

The Nagin and Dal lakes dominate Srinagar. Wular Lake is the largest lake in Kashmir. It is 17 kilometres long and up to 5 kilometres wide, and is fed by the Jhelum River. There are many smaller lakes, including Sheshnag, which is popular with Hindu pilgrims.

**Climate.** The monsoon system affects Kashmir, but not where the Himalaya blocks out the rain-bearing clouds from the Arabian Sea (see **Monsoon**). Even in the Vale of Kashmir, the rainfall is lower because of the influence of the Pir Panjal. Srinagar receives nearly 70 centimetres of rain a year, but Leh has less than 10 centimetres. In Srinagar, 30 per cent of the annual rainfall comes during the monsoon (June to September) and 50 per cent comes between January and April.

In Srinagar, the average maximum temperature is 31° C in July and 4° C in January. The minimum is 18° C in July and 2° C in January. Temperatures can reach as high as 37° C in summer and as low as -11° C in winter.

In Ladakh, daily and seasonal temperature variations are even wider. In the thin atmosphere, the air heats and cools rapidly. In summer, many streams only flow for a few hours each day when the ice in their beds melts.

Vegetation is thin and, apart from thorny bushes able to cope with low water supplies, is confined to the watercourses. Unlike Kashmir, where about a third of the land area is still under forest, Ladakh has few trees. In Kashmir, the forests provide the government with a source of income.

**Plants and animals.** Jammu and Kashmir has habitats ranging from the plains and forested Siwalik Hills to some of the highest peaks of the Himalayan ranges. At low altitudes, the state shares the fauna of the other foothill states such as Himachal Pradesh. Kashmir is par-

**Houseboats** form a floating village on the Jhelum River in Kashmir. On the far river bank, a harvest of brilliant red chillies is drying in the sunshine. River and lakeside sites provide fertile soil and adequate water for growing fruit and vegetables.





**Gulmarg** is a small but popular tourist resort in Kashmir. It offers scenic views of the peaks of the Great Himalaya.

ticularly famous for its sheep and goats. Ibex and *urial* (a wild sheep with a reddish coat) are common. Black and brown bears are still common in remote places, but the destruction of the forest limits their habitat. Kashmir has its own variety of stag, and a large range of game birds and other birds. Wild duck are particularly common on the lakes.

At high altitudes there are some rare species of animals, including red foxes, wolves, mouse hares, and marmots. Some of the state's mammals are only found in Ladakh. They include the *brong* or *drong* (wild yak), *kyang* (wild horse), and *nyan* (large-horned sheep). The snow leopard is the rarest wild animal. Musk deer, the Tibetan gazelle, and the Tibetan antelope are also rarely seen. The Ladakhi goat produces pashmina wool.

The state also has more than 100 species of birds. They include black-necked cranes, Turkoman rock pigeons, desert wheatears, kites, kestrels, and many kinds of ducks, finches, and geese.

### History

The region of northern India now occupied by Jammu and Kashmir has been inhabited for thousands of years. Rock carvings found in Ladakh indicate that *nomadic* tribes (tribes that wandered about from place to place) were present in the area over a very long period. Such tribes included the Mons of northern India, who introduced Buddhism to Ladakh and established settlements in the valleys, and the Dards of Dardistan, now in Pakistan, who introduced irrigation. Other tribes included the Mongols and Champa shepherds of Tibet. Kashmir and Ladakh lay on a branch of the great silk road that ran from China to the Mediterranean at the time of the Roman Empire (see *Rome, Ancient*).

The Vale of Kashmir formed a part of several Indian empires, including that of Asoka in the 200's B.C. An independent kingdom of Kashmir arose in the A.D. 600's. It was founded by Durlabhavardhana, the first king of the

Karkota dynasty, a royal family of local origin. The Karkota kings raised the political status of Kashmir and extended its territorial control. In 855, the Utpala dynasty replaced the rule of the Karkotas. The Utpala kings undertook large-scale irrigation works in the Vale of Kashmir, enabling them to take large areas of land into cultivation.

During the 900's, several small kingdoms and hill states emerged in the foothills of the Himalaya. Among them was Durgara, the future Jammu. By the end of the 900's, the Thi dynasty ruled Ladakh. This dynasty founded a capital at Shey and built many forts throughout their domain. Tibetan Buddhism became established in Ladakh during the 900's. More than 100 *gompas* (Buddhist monasteries) were built in the region.

From the 900's to the 1300's, the rule of the Utpala dynasty in the Vale of Kashmir was dominated by the rivalry of two military factions, the Tantrins and the Ekanagas. Feudal landowners called *damaras* finally put an end to the power struggle. Two Utpala queens conducted the affairs of state with distinction—Queen Sugandhra and Queen Didda. The period was also famous for a history of Kashmir entitled *Rajatarangini*, which was composed in the 1100's by a writer named Kalhana. It is hailed as the first major historical text of ancient India.

Arab invaders had first been drawn to Kashmir in the 700's and had afterward made repeated unsuccessful invasions. However, in the 1200's and 1300's, Afghan and Turkic people whose religion was Islam moved into the Vale of Kashmir. In 1339, one of their leaders, Shah Mirza, finally seized the throne and ruled Kashmir under the name Shams-ud-Din. His dynasty, which retained power until the 1500's, spread Islam throughout the region. One monarch, however, Sultan Zain-ud-Abidin (1420-1470), sought good relations with the Hindus and fostered education, scholarship, and the arts.

About 1553, Bhagan Namgyal founded a dynasty in Ladakh with Leh as its capital. Among the dynasty's most outstanding rulers was Sengge Namgyal (reigned 1616-1642), who enlarged the kingdom to its greatest extent and repaired many of the monasteries which had by that time fallen into decay. He also built new monasteries and the great palace that can still be seen at Leh.

In Kashmir, the Mughal emperor Akbar established his rule by 1588 and built a fort in Srinagar. His son and successor Jahangir, who ruled from 1605 to 1627, increased the beauty of the Vale of Kashmir by planting chinar trees and constructing pleasure gardens.

In the 1600's, Ladakh repulsed invading Baltis from the south and west but was overrun by Tibetan Mongols. The Mughal governor of Kashmir helped the king of Leh regain his throne. But in return the king had to send regular *tribute* (payment) to the Mughal emperor and also had to build a mosque. Mughal power in Kashmir was, however, beginning to decline. The region went through a period of unstable government in the 1700's.

After 1780, the small state of Jammu, controlled by a *Rajput* clan (a clan whose members belonged to the warrior caste of ancient India—see *India, History of*), became an ally of the Sikhs and paid them tribute. Gulab Singh, a member of the princely house of Jammu, won favour with the Sikhs. In Kashmir, meanwhile, Afghan



**On Dal Lake, Srinagar, Kashmiri women in a *shikara* (small boat) gather water lily leaves for use in cooking. The lake is famous for its large house-boats, which serve as floating hotels.**



chiefs controlled the state and oppressed its people. In 1819, the Sikh leader Maharajah Ranjit Singh annexed Kashmir to his kingdom and put an end to the oppression. In 1820, Gulab Singh was made maharajah of Jammu. The dynasty that Gulab Singh founded was called the Dogra Dynasty.

In 1834, Dogra forces invaded Ladakh and placed it under various governors appointed by Gulab Singh. In 1845-1846, the British defeated the Sikhs in the First Anglo-Sikh War. Gulab Singh, who had kept out of the war, acted as a mediator between the two sides. The British, who now had control of Kashmir, ceded it to Gulab Singh. Gulab Singh and his successors, a Hindu dynasty, ruled the new state of Jammu and Kashmir, subject to British supervision, until 1947. The state included Kashmir, Baltistan, and Gilgit, which were largely Muslim, and Ladakh, which had many Buddhists.

In the period before independence, the Muslim League Party in Kashmir favoured joining the proposed new Muslim nation of Pakistan. But the Congress Party wished the area to remain within the country of India. Meanwhile, Gilgit and Baltistan rebelled. In southwest Kashmir, Muslim rebels allied themselves with the Pakistani states.

Following independence and the partition of India in 1947, Kashmir suffered a brief invasion from Pakistan, and its ruler Hari Singh chose to enter union with India. Indian troops opposed the Pakistani invading forces, and hostilities between India and Pakistan continued until December 30, 1948. On that date, both sides agreed a ceasefire. The ceasefire line became the frontier separating the Indian state of Jammu and Kashmir from the Pakistani-held Azad Kashmir. Neither country recognizes the jurisdiction of the other. The Kashmir Assembly declared the state to be part of India in 1957.

In the late 1980's, Muslims in the Indian section of Kashmir staged protests against Indian rule. Some demanded independence and some wanted Kashmir to unite with Pakistan. In the early 1990's, Indian military forces clashed with protesters. Many protesters and

some troops were killed. Communal tensions and terrorist activities led to large scale migration of Hindus from the valley. Democratic institutions were suspended in 1992, and the state came under direct rule from Delhi.

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**Janáček, Leoš** (1854-1928), was a Czech composer best known for his operas and works for male chorus. Many of Janáček's compositions reflect his interest in the folk music of Moravia, his native region. Much of his music features the powerful repetition of folk *motifs* (themes). Janáček's operas show his fascination with the moods and rhythms of speech.

Janáček's most popular opera is probably *Jenůfa* (1904), a tragedy based on peasant life. *The Cunning Little Vixen* (1924) is a charming fable. His other notable operas include *Katya Kabanova* (1921), *The Makropulos Affair* (1926), and *From the House of the Dead* (1930).

Janáček's choral compositions include *The 70,000* (1909) for male choir. He also wrote works for solo piano and songs for solo voice. His chamber music includes *String Quartet No. 1* (1925) and *String Quartet No. 2*

(1928). He composed *Sinfonietta* (1926) for orchestra. Janáček's church music includes the dramatic and joyous *Glagolitic Mass* (1926). Janáček was born in Hukvaldy, a village near Ostrava.

**Janissaries** were a group of highly trained professional soldiers of the Ottoman Empire. The word *Janissary* comes from a Turkish term meaning *new troops*. Sultan Murad I, the third Ottoman ruler, probably organized the Janissaries in the 1300's. The group at first consisted of slaves and prisoners of war, and later of children trained as soldiers. Janissaries were considered slaves of the sultan. They became known for their discipline and their early use of handheld firearms. Janissaries made up the select core of the Ottoman army from the 1300's to the 1500's. But by the 1600's, they had become a threat to the sultan's authority. In 1826, Sultan Mahmud II outlawed the Janissaries as a first step in reforming the empire.

**Jansen, Cornelius** (1585-1638), was a Roman Catholic bishop best known for his book *Augustinus*, published in 1640, after his death. It formed the basis of a religious movement called *Jansenism*. The church condemned as heresies Jansenism's views on grace, free will, and predestination. The movement created much controversy among Catholics in France and the Netherlands.

Jansen based *Augustinus* on his study of the writings of Saint Augustine, a leading early Christian theologian. In *Augustinus*, Jansen wrote that human nature is totally corrupt and that people need God's grace to act according to His will. Jansen also taught that God gives grace only to those He has *predestined* (chosen beforehand) for salvation and that Jesus Christ died only for the people predestined for heaven. Jansenism began to lose its influence in the 1730's.

Cornelius Otto Jansen was born in Acquoy, near Gorinchem, the Netherlands. He became bishop of Ypres, Belgium, in 1636.

See also **Pascal, Blaise**; **Roman Catholic Church** (Jansenism).

**Jansenism.** See **Jansen, Cornelius**; **Pascal, Blaise**; **Roman Catholic Church** (Jansenism).

**Jansher Khan** (1969- ), a Pakistani squash player, became world champion in the late 1980's. Jansher Khan was born in Peshawar. Early in his career, he followed closely the career of another Pakistani world champion, Jahangir Khan. In 1986, Jansher Khan suddenly achieved prominence when he reached the final of the British Open Championship, an event he had entered for the first time. In the final, he lost 3-0 to Jahangir. Jansher went on to win the World Open title a year later. In 1988, he lost the World Open title to Jahangir, but won it again in 1989 and 1990.

See also **Squash**.

**Jansky, Karl Guthe** (1905-1950), an American engineer, was the first person to detect radio waves outside the solar system. His discovery led to the development of *radio astronomy*, a branch of astronomy that studies radio waves from stars and other celestial objects.

Jansky made his discovery in 1931, while investigating static interference in transatlantic radio messages. He heard a hissing noise he could not identify. After extensive study, Jansky determined that the noise came from outside the solar system, near the constellation Sagittarius. He reported his findings in 1932.

Today, scientists use radio waves to "see" and map objects and events in space that cannot be seen with optical telescopes (see **Radio telescope**). Jansky was born in Norman, Oklahoma, and graduated from the University of Wisconsin.

See also **Astronomy** (picture: Karl Jansky).

**Janssen, Zacharias.** See **Microscope** (History of the microscope).

**Jansz, Willem** (1570?- ? ), was a Dutch navigator who is thought to be the first European to see and land on the Australian continent. Jansz and another Dutchman, Jan Lodewycksz, discovered the continent while on the first voyage sponsored by the Dutch East India Company to explore trade routes south of the Indies (now Indonesia). In the early 1600's, the Dutch East India Company controlled the lucrative East Indies spice trade.

Jansz's expedition sailed from the port of Bantam (near present-day Jakarta, Indonesia) on Nov. 18, 1605, in a small, three-masted ship called the *Duyfken* (*Little Dove*). The ship's small size and manoeuvrability made it ideal for voyages through uncharted waters.

After leaving Bantam, Jansz sailed to the Kai and Aru islands and then set his course for the unknown coasts of New Guinea. He sailed east along the south coast of New Guinea, going ashore several times to investigate the land and its inhabitants. On one such expedition, eight members of his crew were killed.

Jansz and Lodewycksz charted the Australian coast south from Pennefather River for about 320 kilometres. When they reached a point that Jansz called *Cabo Keerweer* (now Cape Turnagain), shortages of food and water and reduced crew numbers forced Jansz to cut short the voyage. The *Duyfken* then returned to Banda, the nearest Dutch port.

Jansz was born in Amsterdam, the Netherlands. He became an admiral and also served for 3½ years as the governor of Banda. He was still in the employ of the East India Company when he returned to the Netherlands in 1628. After this date, information about him ceases.



**Willem Jansz** set off from Bantam (near present-day Jakarta) on Nov. 18, 1605. He reached the Australian continent early in 1606 and charted part of the northern coast.



**January** is the first month of the year according to the Gregorian calendar, which is used in almost all the world today. The month is named after Janus, a Roman god.

According to Roman legend, the ruler Numa Pompilius added January and February to the end of the 10-month Roman calendar in about 700 B.C. He gave the month 30 days. Later, the Romans made January the first month of the year. In 46 B.C., the Roman statesman Julius Caesar added a day to January, making it 31 days long. The Anglo-Saxons called the first month *Wolfmonth* because wolves came into the villages in winter in search of food.

**Activities.** In the northern half of the world, January is usually the coldest month of the year. Nature is quiet. Some animals, such as dormice and hedgehogs, sleep both day and night. Plants rest in preparation for the

next growing season. In the southern half of the world, January is usually the warmest month of the year. Plants grow and animals are active.

**Special days.** January 1 is celebrated as New Year's Day in most countries. Australians celebrate Australia Day on January 26, the anniversary of the founding of the Sydney settlement in 1788. In India, January 26 is Republic Day, commemorating the date on which India became a republic in 1950.

Most Christian churches celebrate Epiphany on January 6, the 12th day after Christmas. The festival commemorates the visit of the wise men from the East to the infant Jesus. About the middle of January, Hindus celebrate the festival of Makara Sankranti. If possible, they bathe in the Ganges River, India's most sacred river.

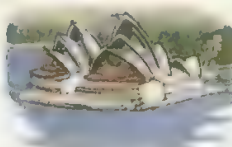
**January symbols.** The snowdrop is the special flower for the month. It often blooms in the snow. Some

### Important January events

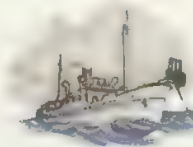
- 1 Lorenzo de' Medici, patron of the arts and ruler of Florence, Italy, born 1449.
  - First issue of *The Times* newspaper, London, 1785.
  - Act of Union, Great Britain and Ireland, 1801.
  - Commonwealth of Australia proclaimed, 1901.
  - Foundation of European Economic Community, 1958.
  - Britain joined European Community, 1973.
- 2 James Wolfe, British conqueror of Quebec, born 1727.
- 3 Cicero, Roman statesman, born 106 B.C.
  - Father Joseph Damien, Belgian missionary to lepers, born 1840.
  - Clement Attlee, British prime minister, born 1883.
- 4 German fairy-tale collector Jakob Grimm born 1785.
  - Louis Braille, French inventor of alphabet used by blind people, born 1809.
  - Burma became a republic, 1948.
- 5 William Wills, explorer of Australia, born 1834.
- 6 New Mexico became the 47th state of the United States, 1912.
- 7 First American presidential election, 1789.
  - St. Bernadette of Lourdes born 1844.
  - Transatlantic commercial telephone service began, New York to London, 1927.
- 8 In the War of 1812, United States forces defeated the British at the Battle of New Orleans, 1815.
  - S. W. R. D. Bandaranaike, Sri Lankan leader, born 1899.
- 9 Richard M. Nixon, president of the United States, born 1913.
- 10 Thomas Paine, republican and advocate of American independence, published his *Common Sense*, 1776.
  - First penny post in England, 1840.
  - First underground railway, London, 1863.
  - League of Nations established, 1920.
- 10 First UN General Assembly met, London, 1946.
- 11 Sir John Macdonald, first prime minister of Canada after the confederation, born 1815.
- 12 Governor John Winthrop of Massachusetts Bay Colony, America, born 1588.
  - Edmund Burke, British politician and orator, born in Ireland, 1729.
  - P. W. Botha, South African president, born 1916.
  - End of Nigerian civil war, 1970.
- 13 Abel Tasman, Dutch navigator, began second voyage of exploration in Southern Hemisphere, 1644.
- 14 Benedict Arnold, American Revolution general and traitor, born 1741.
  - Albert Schweitzer, doctor, musician, philosopher, and missionary, born 1875.
  - Casablanca Conference during World War II opened, 1943.
- 15 Molière, French dramatist, born 1622.
  - American civil rights leader Martin Luther King, Jr., born 1929.
  - Aswan Dam on the Nile River, Egypt, opened, 1971.
- 16 Coronation of Russian czar, Ivan the Terrible, 1547.
  - Shah Mohammad Reza Pahlavi left Iran following mass demonstrations against his rule, 1979.
- 17 Benjamin Franklin, American statesman and inventor, born 1706.
  - Anton Chekhov, Russian playwright and short-story writer, born 1860.
  - David Lloyd George, British statesman and prime minister, born 1863.
- 18 A. A. Milne, British writer for children, born 1882.
  - British explorer Robert Scott's expedition reached the South Pole, 1912.
  - Versailles Peace Conference opened following World War I, 1919.



Jan. birthstone—  
garnet



Jan. 1—Commonwealth  
of Australia proclaimed



Jan. 7—Transatlantic  
telephone service begins



Jan. 14—Albert  
Schweitzer born

people consider the carnation the special flower. The garnet is the January gem.

### Quotations

Ring out the old, ring in the new,  
Ring, happy bells, across the snow;  
The year is going, let him go;  
Ring out the false, ring in the true.

Alfred, Lord Tennyson

Blasts of January would blow you through and through.  
William Shakespeare

Related articles in *World Book* include:

Calendar	Garnet	New Year's	Snowdrop
Epiphany	Janus	Day	Thor

**Janus**, in Roman mythology, was a god who had two faces that looked in opposite directions. One face

looked into the past, and the other looked into the future. Janus served as the god of gates and doors and of entrances and exits. His name comes from the Latin word *janua*, meaning *gate*.

The Romans prayed to Janus at the beginning and end of any important action, especially a war. The doors to Janus' temple in Rome always remained open in wartime. They were closed only during the rare periods when Rome was at peace. The Romans called on Janus at the beginning of every prayer, even ahead of Jupiter, the king of the gods. January, the first month of the year, was named after Janus.

Other Indo-European peoples had a god who resembled Janus. For example, the early Hindus in India prayed to a two-faced god named Vayu before starting any major undertaking.

See also **New Year's Day** (Early customs).

### Important January events

- 19 James Watt, Scottish inventor, born 1736.
  - Robert E. Lee, commander of the Confederate Army in the American Civil War, born 1807.
  - Edgar Allan Poe, American author, born 1809.
  - British steelmaker Sir Henry Bessemer born 1813.
  - Paul Cézanne, French painter, born 1839.
  - Indira Gandhi became prime minister of India, 1966.
- 20 Hong Kong ceded to Britain by China, 1841.
  - Death of King George V, 1936.
  - Inauguration Day for the president of the United States every fourth year, beginning in 1937.
- 21 Execution of King Louis XVI of France, 1793.
  - U.S. Confederate Army General Stonewall Jackson born 1824.
  - Soviet Communist leader V. I. Lenin died, 1924.
  - The U.S.S. *Nautilus*, first nuclear-powered ship in the world, launched, 1954.
  - Anglo-French *Concorde* supersonic airliner entered airline service, 1976.
- 22 Sir Francis Bacon, English scientist-philosopher, born 1561.
  - Lord Byron, British poet, born 1788.
  - Swedish dramatist August Strindberg born 1849.
  - Beatrice Webb, pioneer of feminism and socialism in Britain, born 1858.
  - Death of Queen Victoria of Britain, 1901.
- 23 French painter Edouard Manet born 1832.
- 24 Frederick the Great, king of Prussia, born 1712.
  - Gold discovered in California, U.S.A., 1848.
  - Death of Sir Winston Churchill, British statesman and prime minister, 1965.
- 25 Robert Boyle, Irish chemist, born 1627.
  - Robert Burns, Scottish poet, born 1759.
  - Milton Obote deposed as leader of Uganda by Idi Amin, 1971.
- 26 Sydney founded, 1788; celebrated as Australia Day.
  - Death of General Gordon at Khartoum, 1885.
  - Foundation of the Rugby Union in Britain, 1871.
  - Cullinan diamond, world's largest diamond, found in South Africa, 1905.
  - India became a republic, 1950; celebrated as Republic Day.
- 27 Wolfgang Amadeus Mozart, Austrian composer, born 1756.
  - Lewis Carroll, British author of *Alice's Adventures in Wonderland*, born 1832.
  - U.S. inventor Thomas Edison granted the first patent for his incandescent light, 1880.
  - Scotsman John Logie Baird first demonstrated television, 1926.
- 28 Sir Henry Morton Stanley, who explored Africa, born 1841.
  - U.S. space shuttle *Challenger* exploded, killing all seven crew members aboard, 1986.
- 29 Victoria Cross medal, for gallantry in war, instituted, 1856.
  - W. C. Fields, American comedian, star of stage and film, born 1880.
- 30 Charles I, king of England, executed, 1649.
  - George Bass, explorer of Australia's coastline, born 1771.
  - Franklin D. Roosevelt, president of the United States, born 1882.
  - Adolf Hitler named chancellor of Germany, 1933.
  - Mohandas K. Gandhi, spiritual and political leader of India, assassinated, 1948.
- 31 Franz Schubert, Austrian composer, born 1797.
  - Brunel's steamship *Great Eastern* launched, 1858.
  - Russian ballet dancer Anna Pavlova born 1881.
  - German army surrendered at Stalingrad, 1943.



Jan. 21—*Concorde* entered airline service



Jan. 24—Start of California gold rush



Jan. 27—Wolfgang Amadeus Mozart born



Jan. 27—Lewis Carroll born





## Japan

**Majestic Mount Fuji**, framed by cherry blossoms, symbolizes the great natural beauty of Japan. The country's spectacular scenery attracts tourists from all parts of the world.

**Japan** is an island country in the North Pacific Ocean. It lies off the northeast coast of mainland Asia and faces Russia, Korea, and China. Four large islands and thousands of smaller ones make up Japan. The four major islands—Hokkaido, Honshu, Kyushu, and Shikoku—form a curve that extends for about 1,900 kilometres. Japan is one of the most densely populated countries in the world.

The Japanese call their country *Nippon* or *Nihon*, which means *source of the sun*. The name *Japan* may have come from *Zipangu*, the Italian name given to the country by Marco Polo, a Venetian traveller of the late 1200's. Polo had heard of the Japanese islands while travelling through China.

Mountains and hills cover most of Japan, making it a country of great beauty. Many of the mountains are volcanoes, the best known of which is Mount Fuji, the country's highest peak. Japan's mountains and hills take up so much land that the great majority of the people live on narrow plains along the coasts. These coastal plains have much of Japan's best farmland and most of the country's major cities are situated on them. More than three-quarters of the people live in urban areas. Japan's big cities are busy, modern centres of culture, commerce, and industry. Tokyo, the capital and largest

city, stands on the Kanto Plain, the country's largest low-land area. Japan also has three other cities with more than two million inhabitants.

Japan is one of the world's economic giants. Its total economic output is exceeded only by that of the United States. The Japanese manufacture a wide variety of products, including cars, computers, iron and steel, microwave ovens, plastics, radios, television sets, and video recorders. The country's factories have some of the most advanced equipment in the world. Japan became a major economic power even though it has few natural resources. It imports many of the raw materials needed for industry and pays for them by selling its manufactures abroad. As a result, Japan has become a major trading nation.

Life in Japan reflects the culture of both the East and the West. For example, baseball games and exhibitions of *sumo*, an ancient Japanese style of wrestling, are the favourite sporting events in the country. Although many Japanese wear Western-style clothing, almost all the people dress in traditional kimonos during festivals, on holidays, and on other special occasions. The Japanese *no* and *kabuki* dramas, both hundreds of years old, remain popular. But the Japanese people also flock to see films and the latest Western plays. Many Japanese artists

combine traditional and Western styles and themes in their works.

Early Japan was greatly influenced by the neighbouring Chinese civilization. From the late A.D. 400's to the early 800's, the Japanese borrowed heavily from Chinese art, government, language, religion, and technology. During the mid-1500's, the first Europeans arrived in Japan. Trade began with several European countries, and Christian missionaries from Europe converted many Japanese. During the early 1600's, however, the rulers of Japan decided to cut the country's ties with the rest of the world. They wanted to keep Japan free from outside influences.

Japan's isolation lasted until 1853, when Commodore Matthew C. Perry of the United States sailed his warships into Tokyo Bay. As a result of Perry's show of force, Japan agreed in 1854 to open two ports to U.S. trade. During the 1870's, the Japanese government began a major drive to modernize the country. New ideas and manufacturing methods were imported from Western countries. By the early 1900's, Japan had become an industrial and military power.

During the 1930's, Japan's military leaders gained control of the government. They set Japan on a programme of conquest. On Dec. 7, 1941, Japan attacked United States military bases at Pearl Harbor in Hawaii, bringing the United States into World War II. The Japanese won many early victories, but then the tide turned in favour of the United States and the other Allied nations. In August 1945, U.S. planes dropped the first atomic bombs used in warfare on the Japanese cities of Hiroshima and Nagasaki. On Sept. 2, 1945, Japan officially surrendered, and World War II ended.

World War II left Japan completely defeated. Many Japanese cities lay in ruins, industries were shattered, and Allied forces occupied the country. But the skilful Japanese people worked hard to overcome the effects of the war. By the late 1960's, Japan had become a great industrial nation. The success of the Japanese economy has won the admiration of countries throughout the world. Today, few people enjoy a higher standard of living than do the Japanese.

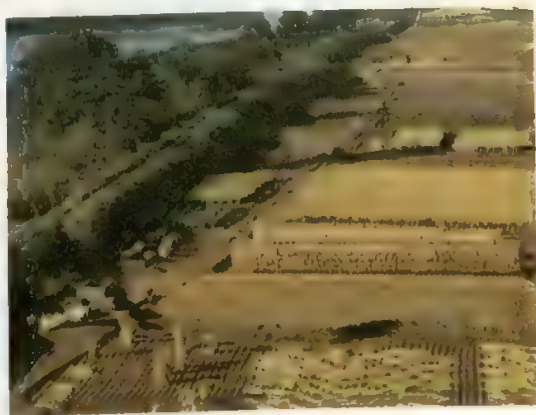
**Rice fields** occupy more than half of Japan's farmland. Workers transplant rice seedlings into flooded fields, *below left*. Later, they harvest the crop, *below right*.

## Government

Japan's present Constitution was drawn up by the Allied occupation forces and went into effect on May 3, 1947. This democratic Constitution completely changed the Japanese government. The country's first Constitution, proclaimed in 1889, gave ruling power to the emperor of Japan. The 1947 Constitution transferred that power to the Japanese people. It also guarantees the people many human liberties, such as freedom of speech, of religion, of the press, and of assembly. The Constitution provides for three branches of government—legislative, executive, and judicial. All Japanese citizens 20 years and older may vote. The 1947 Constitution granted women the right to vote.

**The emperor.** At various times in Japan's history, emperors held great power. However, the 1947 Constitution states: 'The Emperor shall be the symbol of the State and of the unity of the people, deriving his position from the will of the people with whom resides sov-

**Tokyo** is the main business centre of Japan, as well as the country's capital and largest city.





## Japan in brief

**Capital:** Tokyo.

**Official language:** Japanese.

**Official name:** *Nippon* or *Nihon* (Source of the Sun).

**National anthem:** "Kimigayo" ("The Reign of Our Emperor").

**Largest cities:** (1990 census)

Tokyo (8,163,573)  
Yokohama (3,220,331)  
Osaka (2,623,801)  
Nagoya (2,154,793)  
Sapporo (1,671,742)  
Kobe (1,477,410)  
Kyoto (1,461,103)



**Japan's flag**, adopted in 1854, is a red sun on a white background. The Japanese call the country *Nippon* or *Nihon*, meaning *source of the sun*.

**The imperial mon (badge)** consists of a chrysanthemum with 16 petals. This symbol of the imperial family dates back hundreds of years.

## Land and climate

**Land:** In North Pacific Ocean off coast of eastern Asia. Faces Russia, Korea, and China. Four main islands—Honshu, Hokkaido, Kyushu, and Shikoku. Mountains and hills occupy most of country. Small plains occur in many areas, especially where river basins reach coast. Most of population live in plains.



**Area:** 377,801 km<sup>2</sup>. The four main islands stretch about 1,900 km from northeast to southwest. **Coastline**—9,426 km.

**Elevation:** *Highest*—Mount Fuji (3,776 m). *Lowest*—sea level.

**Climate:** Central and southern Japan have hot summers, mild winters, and moderate precipitation in all seasons. Daytime high temperatures average about 30 °C in the hottest month, August, about 8 °C in January, the coldest month. Hokkaido, northern Honshu, and high mountain areas are much colder than the rest of the country in winter, and cooler in summer.

## Government

**Form of government:** Parliamentary democracy with ceremonial emperor.

**Ceremonial head of state:** Emperor.

**Head of government:** Prime minister.

**Legislature:** Diet of two houses: 500-member House of Representatives and 252-member House of Councillors.

**Executive:** Prime minister (chosen by Diet), assisted by Cabinet (chosen by prime minister).

**Political subdivisions:** 47 prefectures.

## People

**Population:** 1996 estimate—126,320,000. 1990 census—123,611,541. 2001 estimate—128,412,000.

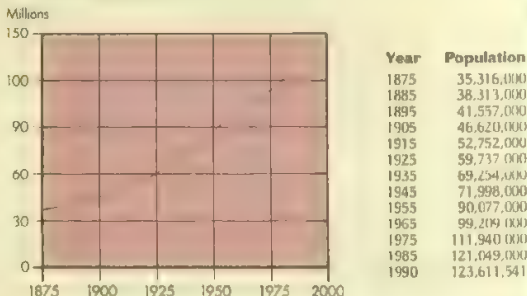
**Population density:** 334 people per km<sup>2</sup>.

**Distribution** 78 per cent urban, 22 per cent rural.

**Major ethnic/national groups:** Almost entirely Japanese; small minority of Koreans.

**Major religions:** 90 per cent Shinto (Japanese traditional religion), 75 per cent Buddhist (most Japanese are both Shintoist and Buddhist), less than 1 per cent Christian.

## Population trend



## Economy

**Chief products:** *Agriculture*—rice, milk, pigs, chickens and eggs, beef, cabbages and Chinese cabbages, white radishes, potatoes, mandarin oranges, tea. *Fishing*—tuna, sardines, pollack, mackerel, salmon, squid, crabs, scallops, oysters, seaweed. *Manufacturing*—electric and electronic products, cars, machinery, iron and steel products, chemicals, processed foods and beverages, optical equipment, watches.

**Money:** *Currency unit*—yen. One yen = 100 sen.

**Gross domestic product:** 1992 total GDP—U.S.

\$3,670,000,000,000. 1992 GDP per capita—U.S. \$29,473.

**Foreign trade:** *Major exported goods*—motor vehicles, electronic appliances, recording equipment, iron and steel, office machinery, scientific and optical equipment.

*Major imported goods*—petroleum, metal ores, timber, coal, fish and shellfish, grain products. *Main trading partners*—United States, China, South Korea, Germany, Australia.

## Snow festival, Sapporo



## Highlights

**Tokyo**, Japan's capital and largest city. In central Honshu, the largest of four major Japanese islands (shaped somewhat like a boomerang, widest at the centre and with many ragged peninsulas). For highlights of the capital, see **Tokyo** (Tokyo in brief).

## Central Honshu (called Chubu), Japan's heartland

**Mount Fuji**. Japan's highest peak, traditionally considered sacred. Snow-capped volcanic cone (inactive), surrounded by forests and five beautiful lakes. Hot springs nearby in Hakone area. Izu peninsula, south of Mount Fuji, has rugged rocky shoreline, mild climate, many flowers.

**Kamakura**, near Yokohama. *Daibutsu* (Great Buddha)—a 11.4-metre bronze statue of Buddha.

**Nikko**. City 150 kilometres north of Tokyo. Toshogu Shrine, with colourful carvings of people and animals. "Hear no evil, see no evil, speak no evil" monkeys carved on lintel of shrine building.

**Nikko National Park** Mountainous area with Lake Chuzenji and 100-metre Kegon waterfall.

**Kyoto**. Heart of traditional Japanese culture; capital 794-1868. Castle, old Imperial Palace, numerous gardens, over 200 Shinto shrines, about 1,500 Buddhist temples. Historic wooden buildings maintain atmosphere of simplicity, blend with natural surroundings. Pavilion walls entirely covered with gold foil. Chion-in Temple has largest temple bell in Japan.

**Nara**. Ancient capital in 700's. Todaiji Temple with 16.2-metre bronze Buddha in world's largest wooden building. Horyuji Temple includes some of the world's oldest wooden structures.

**Osaka**. Industrial heart of Japan; clothing, electrical appliances, electronic equipment. International trading centre; major seaport at nearby Kobe. Osaka Castle; *bunraku* (puppet theatre); melodramatic *kabuki* plays with colourful costumes.



Kabuki theatre, Tokyo

**Nagoya**. Industrial city—textiles, clocks, machinery, ceramics.

**Ise-Shima National Park**. On peninsula south of Nagoya. Rugged coastline, macaques (wild monkeys), Ise Grand Shrines. Toba, centre of cultured pearl industry.

**Japanese Alps**. High mountains in centre of island. Skiing and other snow sports, forests.

**Takayama**. At western edge of Japanese Alps. Preserves traditional architecture; arts and crafts demonstrations of papermaking, wood carving, doll making, and lacquerware production.

**Kanazawa**. On snowy Sea of Japan coast. Artist colony. Winding streets, historic atmosphere. Kenrokuen Garden, started in the 1600's; flowing stream, boulders. Myoryuji Temple has booby traps, trick doors, secret passages once used to allow the *daimyo* (feudal lord) to escape invaders.

## Northeastern Honshu (called Tohoku)

**Towada-Hachimantai National Park**. Lake Towada, crater of an extinct volcano; Hachimantai, extensive wilderness.

## Western Honshu (called Chugoku)

**Okayama**. Korakuen Garden. Porcelain. **Kurashiki**. Major art gallery with Western masterpieces. Folkcraft museum: woodware, ceramics, glass items.

**Hiroshima**. Destroyed by atomic bomb in 1945, city rebuilt. Peace Memorial Park at bomb site.

**Hokkaido** Japan's northernmost island. Sparsely populated compared with rest of Japan. Several national parks, bears and deer, dairy farms, evergreen forests, communities of Ainu (may have been original inhabitants of Japan).

**Sapporo**. Hokkaido's chief city. Laid out in 1871 with a Western grid street pattern. Less crowded than other Japanese cities. Odori Promenade—a long and narrow park through centre of the city. Site of 1972 Winter Olympic Games. Snow festival. Botanical garden.

**Tsugaru Strait**. Beneath strait between Honshu and Hokkaido is world's longest tunnel (53.9 kilometres).

**Shikoku** Smallest of Japan's four main islands and more traditional than other large Japanese islands. Bridge for cars and railway opened in 1988, connects Takamatsu on Shikoku with Kurashiki area on Honshu. Mountainous with forests, farms. Many pilgrimage temples.

**Inland Sea**. Separates Honshu from Shikoku and Kyushu. Many islands; rocky, forest-clad shores.

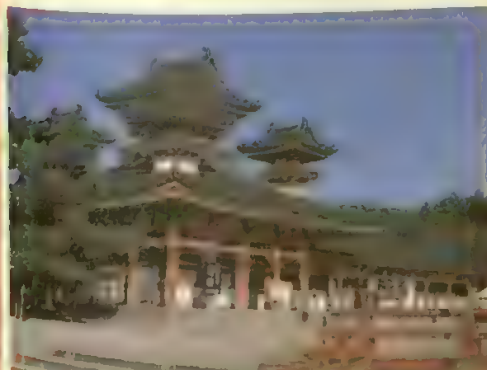
**Kyushu** Southernmost and westernmost of large Japanese islands, warm climate, noted for hot springs and volcanic activity.

**Nagasaki**. Once Japan's only seaport open to foreigners. Setting for opera *Madama Butterfly*. Oura Tenshudo—Roman Catholic church commemorates 26 Christian martyrs crucified in 1597. Hit by atomic bomb in 1945 after bombing of Hiroshima.

**Kumamoto**. Big castle. Suizenji Park—landscaped traditional garden. Nearby Mount Aso National Park one of the world's most extensive areas of volcanic activity.

**Beppu**. Bathing in hot springs. Boiling mud ponds.

**Kagoshima**. On Kagoshima Bay with volcano Mount Sakurajima in background. Palm trees, mandarin oranges.



Shrine in Kyoto (left)

The Daibutsu Buddha (below)





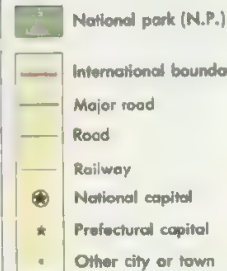
## Japan map index

## Cities and towns

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Hamada	51,070	H	3
Hamakita*	77,227	H	6
Hamamatsu	534,620	H	6
Hanamaki	69,885	E	7
Handa	92,883	H	5
Higashihiro	84,718	H	3
Higashi-	84,718	H	3
Higashi-	113,818	G	7
Higashimatsu-	70,425	G	7
Higashi-	134,002	G	7
Higashi-	518,319	H	5
Higashi-	69,879	G	7
Hikone	94,205	G	5
Himeji	454,360	H	4
Hiro	165,928	G	7
Hirakata*	390,788	H	5
Hiratsuka	243,950	G	7
Hirosaki	174,704	D	7
Hiroshima	1,085,705	H	3
Hitachi	202,141	G	7
Hofu	117,634	H	3
Hoya*	91,563	G	7
Ibaraki	254,078	H	3
Ichihara*	257,716	G	7
Ichikawa*	436,596	G	7
Ichinomiya	262,434	G	5
Iida*	92,402	G	7
Iizuka	81,868	I	2
Ikerda	104,218	H	2
Ikoma	86,296	H	3
Imabari*	123,114	I	3
Inazawa*	94,480	H	6
Iruma*	137,585	G	7
Isehaya	88,374	I	2
Ise	104,164	H	5
Isehara*	77,765	G	7
Iserikawa*	115,938	G	7
Ishinomaki	121,976	E	8
Izumi*	186,134	H	4
Izumi*	70,195	H	7
Iwaki	355,812	F	7
Iwakuni	109,530	H	3
Iwakuni	81,665	B	8
Iwate*	108,662	G	7
Izumi*	146,127	E	7
Izumi*	137,633	H	5
Izumano*	91,563	H	3
Izumi	80,748	G	7
Joetsu	130,116	F	6
Joyo*	81,849	H	5
Kadoma*	142,297	H	5
Kagoshima	536,752	I	2

Kaizuka*	79,591	H	5
Kakamiga-	129,680	G	5
hara*	239,801	H	4
Kakogawa*	85,705	G	7
Kanagawa*	60,005	E	8
Kamaishi	174,307	G	7
Kameoka*	78,206	H	4
Kanazawa	443,868	G	5
Kani*	69,630	G	6
Kanoya*	76,031	I	2
Kanuma*	88,079	L	7
Karatsu	76,246	I	2
Karui*	120,125	H	6
Kashihara*	115,550	H	5
Kashima*	308,058	G	7
Kashiwara*	73,251	H	5
Kashiwazaki	86,020	F	6
Kasugai	266,599	G	5
Kasukabe*	180,823	G	7
Katsuta*	109,823	G	7
Kawachina-	180,767	H	5
gano*	304,854	G	7
Kawagoe	435,680	G	7
Kawaguchi	141,253	H	4
Kawanishi*	1,173,603	G	7
Kawasaki	68,139	F	7
Kesennuma*	84,311	G	7
Kimitsu*	126,446	G	7
Kiryu	123,413	G	7
Kishiwada	188,543	H	5
Kitakyushu	1,026,455	H	2
Kitami	107,247	B	9
Kobe	1,477,410	H	5
Kochi	317,069	I	4
Kodaira*	77,092	H	4
Kofu	200,626	G	6
Koganei*	105,899	G	7
Kokubunji*	100,982	G	7
Komai*	73,646	G	7
Komaki*	124,441	H	6
Komatsu	106,075	G	3
Konan*	92,048	H	6
Koriyama	314,642	F	7
Koshigaya*	285,259	G	7
Kumagaya	152,124	G	7
Kyoda*	579,306	I	2
Kumatori*	64,881	G	7
Kurashiki	414,693	H	4
Kurayoshi	52,349	C	4
Kure	216,723	H	3
Kuroiso	48,742	F	7
Kumme	228,347	I	2
Kusatsu*	87,543	H	5
Kushiro	205,639	B	9
Kuwana*	94,730	H	5
Kyoto	1,461,103	H	5
Maebashi	349,050	G	7
Maebashi	246,261	G	7
Maizuru	98,779	G	5
Maruame	74,271	H	4
Masuda	54,050	H	3
Matsubara*	135,919	H	5
Matsue	456,210	G	7
Matsue	142,956	G	3
Matsumoto	200,715	G	6
Matsuyama	443,322	H	3
Matsuzaka	118,723	H	5
Milbra*	85,975	H	5
Miki*	74,527	H	4
Mino*	122,120	H	5
Misato*	128,376	G	7
Mishima*	105,418	H	6
Mitaka*	165,564	G	7
Mito	234,968	G	7
Miyako*	61,013	H	2
Miyakonono	130,153	I	2
Miyazaki	287,352	I	3
Mobara*	76,931	G	7
Moriguchi*	157,372	H	5
Morioka	235,434	D	7
Muroran	117,855	C	7
Musashino*	139,077	G	7
Nagano	347,026	G	6
Nagaoka	185,938	F	6
Nagatsuyoshi*	75,242	H	5
Nagato	140,059	G	7
Nagasaki	444,599	I	2
Nagoya	2,154,793	H	5
Naha*	304,836	H	5
Narita*	151,471	C	7
Narita*	77,178	G	7
Nemuro	40,675	B	10
Neyagawa*	256,524	H	5
Nigata	486,097	F	6
Niihama	129,149	H	4
Niiza*	138,919	G	7
Nishino-	426,909	H	4
miya*	31,930	H	6
Nishio*	130,624	I	3
Nobeoka	114,475	G	7
Noda*	59,167	D	7
Noshiro	211,732	H	6
Numazu	167,184	B	8
Obihiro	171,794	E	7
Odake*	193,417	G	5
Odawara	148,281	G	5
Ofa*	408,501	I	3

Okaya	61,780	G	6
Okayama	591,730	H	5
Okazaki	305,822	H	6
Okinawa*	105,843	G	7
Ome*	125,960	G	7
Omura	403,776	G	7
Omura*	69,472	I	2
Omura*	150,453	H	5
Onomichi	100,642	H	4
Osaka	2,623,801	H	5
Ota*	139,801	G	7
Otari	163,211	B	6
Otsu	280,018	H	5
Oyama	142,362	G	7
Saga	169,963	I	2
Sagamihara*	531,542	G	7
Saitama	54,709	I	3
Sakado*	87,596	G	7
Sakai	807,765	H	5
Sakata	100,811	E	7
Sakura*	144,688	G	7
Sanjo	86,325	F	6
Sano*	80,753	H	5
Sapporo	1,671,742	B	7
Sasebo	244,677	I	2
Sayama*	157,309	G	7
Sendai	918,398	F	7
Seto	126,340	G	6
Settsu*	86,332	H	5
Shibata	77,219	F	7
Shimada	172,388	H	6
Shimizu	241,523	H	6
Shimono-	262,635	H	2
seki	61,823	F	7
Shiogama	472,196	H	6
Shizuoka	206,142	G	7
Soka*	345,206	H	5
Suifu*	174,105	H	5
Suzuka	152,824	G	7
Tachikawa*	84,829	G	5
Tajimi	323,684	H	4
Takamatsu	179,466	F	5
Takara	201,862	H	4
Takasa-	91,434	H	4
zuka*	236,461	G	6
Takesaki	359,867	H	5
Takasaki	60,148	G	5
Taketo	52,005	B	8
Takikawa	144,489	G	7
Tama*	76,957	H	4
Tamano	70,827	I	5
Tanabe	71,333	G	7
Tanashi*	75,141	G	6
Tatebay-	56,035	H	7
shi*	59,130	H	5
Tateyama	56,289	H	5
Tenri	76,360	G	7
Tochigi*	95,278	H	6
Toda*	303,040	G	7
Tokoro-	263,536	H	4
zawa*	110,900	H	2
Tokushima	8,163,573	G	7
Toku-yama*	111,927,457	G	7
Tokyo	160,118	B	8
Tomakomai	110,447	H	5
Tondabay-	78,609	G	7
ashi*	142,467	C	4
Toride*	321,254	G	6
Tottori	337,982	H	6
Toyama	111,730	H	6
Toyohashi	409,817	H	5
Toyokawa*	332,336	H	6
Toyonaka*	157,177	H	5
Toyota*	127,471	G	7
Tsu	22,860	G	7
Tsushima	65,670	G	5
Tsukuba	143,396	F	7
Tsuruga	86,835	H	4
Tsuyama	175,053	H	2
Ube	119,435	G	6
Ueda*	177,010	H	5
Utsunomiya	112,612	G	7
Urawa	118,271	G	7
Urayasu*	115,675	G	7
Utsunomiya	52,216	I	2
Utsunomiya	426,795	G	7
Utsunomiya	71,379	I	3
Utsunomiya	396,553	H	5
Wakayama	51,834	A	8
Wakamatsu	70,407	C	7
Warabi*	148,615	G	7
Yachiyo*	112,186	H	6
Yazu*	249,487	E	7
Yamagata	129,149	H	4
Yamaguchi	194,866	G	7
Yamato*	89,624	H	5
Yamatokori-	277,568	H	5
yama*	108,135	I	2
Yao*	274,801	H	5
Yatsushiro	3,220,331	G	7
Yokohama	433,358	G	7
Yokosuka	91,435	A	8
Yonago	93,725	F	7
Yonezawa	71,398	G	7
Yono*	112,102	G	7
Zama*	112,102	G	7

Japan  
political map

## NORTH KOREA

## SOUTH KOREA

## Pusan

## Kure

## Kure

## Kure

## Kure

## Kure

## Kure

## Kure

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## Kure

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## Kure

\*Does not appear on map; key shows general location

†Population of metropolitan area, including suburbs.

‡Does not appear on map, on Okinawa.

Sources: 1990 census for cities over 100,000; 19







**Akihito** succeeded his father, Hirohito, as emperor of Japan in 1989. His enthronement, *above*, took place in 1990.

oreign power." The emperor's duties, therefore, are entirely ceremonial. He inherits his throne.

**The Diet** makes Japan's laws. It consists of two houses. The House of Representatives has 500 members. They are elected to four-year terms from electoral districts. The House of Councillors has 252 members. Half the councillors are elected every three years to six-year terms. Of the councillors, 100 are elected from the country as a whole, and 152 are chosen from 47 political divisions called *prefectures*.

**The prime minister**, Japan's chief executive officer, is chosen by the Diet from among its members. The prime minister is usually the leader of the political party that has the most seats in the Diet. A Cabinet assists the prime minister in carrying out the operations of the government. The prime minister appoints the members of the Cabinet. More than half the Cabinet ministers must be selected from the Diet.

**Local government.** The voters in each of Japan's 47 prefectures elect a governor and an assembly. The prefectures are further divided into cities, towns, and villages. The people in each of these smaller units elect a mayor and a local assembly.

**Politics.** Japan has several political parties. The most successful is the Liberal-Democratic Party (LDP), a conservative party which has held more seats in the Diet than any other party since 1955.

In 1993, a coalition of other important parties was formed to oppose the LDP. The largest members of the coalition included the Social Democratic Party of Japan,

the Japan Renewal Party, the Komeito (Clean Government Party), and the Japan New Party. In 1994, the Social Democratic Party withdrew from the coalition and joined in a coalition with the LDP.

**Courts.** Japan's highest court, the Supreme Court, consists of a chief justice and 14 other judges. The Cabinet names the chief justice, who is then appointed by the emperor. The Cabinet appoints the 14 other judges. The Supreme Court is the final court in determining questions of constitutionality. Lower Japanese courts are 8 regional high courts; 50 district courts; numerous summary courts, which deal with minor offences and small claims; and many family courts, which handle domestic cases.

**Armed forces.** Japan's Constitution states that the country does not have the right to wage war or to have air, ground, or sea forces for that purpose. However, Japan maintains air, ground, and sea forces for self-defence. Most Japanese believe that these forces are not unconstitutional. Japan's self-defence forces have about 243,000 members. Service is voluntary.

### Japan's prefectures

Prefectures are the largest units of local government in Japan. The map below shows the country's 47 prefectures. Each of them is numbered to correspond to its listing in the table.

- |               |               |               |
|---------------|---------------|---------------|
| 1. Aichi      | 17. Kagawa    | 33. Osaka     |
| 2. Akita      | 18. Kagoshima | 34. Saga      |
| 3. Aomori     | 19. Kanagawa  | 35. Saitama   |
| 4. Chiba      | 20. Kochi     | 36. Shiga     |
| 5. Ehime      | 21. Kumamoto  | 37. Shimane   |
| 6. Fukui      | 22. Kyoto     | 38. Shizuoka  |
| 7. Fukuoka    | 23. Mie       | 39. Tochigi   |
| 8. Fukushima  | 24. Miyagi    | 40. Tokushima |
| 9. Gifu       | 25. Miyazaki  | 41. Tokyo     |
| 10. Gumma     | 26. Nagano    | 42. Tottori   |
| 11. Hiroshima | 27. Nagasaki  | 43. Toyama    |
| 12. Hokkaido  | 28. Nara      | 44. Wakayama  |
| 13. Hyogo     | 29. Niigata   | 45. Yamagata  |
| 14. Ibaraki   | 30. Oita      | 46. Yamaguchi |
| 15. Ishikawa  | 31. Okayama   | 47. Yamanashi |
| 16. Iwate     | 32. Okinawa   |               |





A Tokyo street scene reflects the common ancestry of most Japanese. Many of their ancestors came from the Asian mainland. Others may have come from islands south of Japan. The nation has a few small minority groups, such as the Ainu.



The Ainu may have been Japan's original inhabitants. Most of them now live on Hokkaido, the country's northernmost island

## People

**Population.** Japan is one of the world's largest nations in population. For Japan's total population, see the *Japan in brief* page of this article. During the period from 1870 to 1970, Japan's population more than tripled. Since 1970, however, a low birth rate has slowed the population growth. The population of Japan is continuing to grow, but the increase now averages less than one-half of 1 per cent a year.

Japan is one of the world's most densely populated countries. If the people of Japan were distributed evenly throughout the country, there would be about 334 people per square kilometre. But parts of Japan are actually much more crowded. About 90 per cent of the people live on coastal plains, which make up only about 20 per cent of Japan's territory. As a result of this population distribution, these plains are among the most thickly populated places on the earth.

Millions of people crowd the big cities along Japan's coasts. About 8½ million people live in Tokyo, the country's capital and largest city. Tokyo is one of the largest cities in the world. It has an average of about 14,000 people per square kilometre. Yokohama, Osaka, and Nagoya have populations of more than 2 million. Seven other cities have populations of one million people or more.

**Ancestry.** Scientists have found evidence that the Japanese are descended from various peoples who migrated to the islands from other parts of Asia. Many of these peoples came in waves from the northeastern part of the Asian mainland, passing through the Korean Pen-

insula. Some of the ancestors of the Japanese may have come from islands south of Japan.

Scientists do not know for certain when people first arrived in Japan. But as early as 4500 B.C., the Japanese islands were inhabited by people who hunted, fished, and gathered fruit and plants for food. This early culture is known as the *Jomon*, which means *cord pattern*, because the people made pottery that was decorated with ropelike designs.

During the 200's B.C., more major waves of migration must have occurred because a new, settled agricultural society replaced the *Jomon*. This culture is called the *Yayoi*, after the section of modern Tokyo where remains of the culture were found. The Yayoi people grew rice in irrigated fields and established villages along streams and on coastal plains. The Japanese people of today are probably descended from the Yayoi. In fact, scientists believe that by A.D. 100 the people living throughout the islands closely resembled the present-day Japanese in language and appearance.

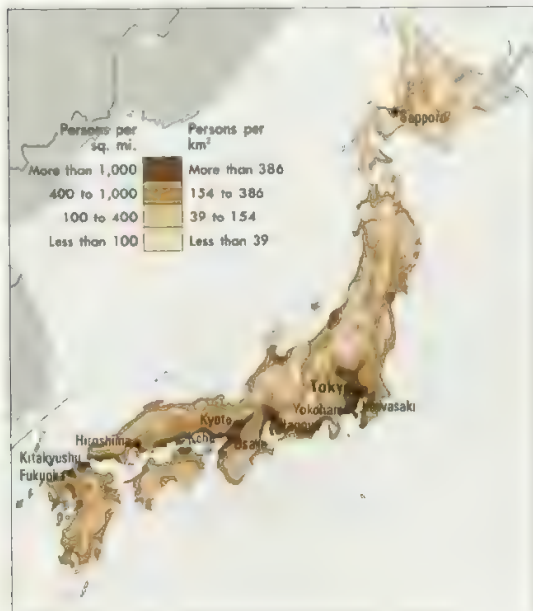
Chinese, Koreans, and a group of people called the *Ainu* make up the largest minority groups in Japan. The country has about 70,000 Chinese, about 675,000 Koreans, and about 15,000 Ainu. Most of the Ainu live on Hokkaido, the northernmost of Japan's main islands. Many Ainu have intermarried with the Japanese and adopted the Japanese culture. The rest of the Ainu are ethnically and culturally different from the Japanese. Some scientists believe that the Ainu were Japan's original inhabitants, who were pushed northward by the ancestors of the present-day Japanese people. See *Ainu*.

Japan's minority groups suffer from prejudice. But the



### Where the people of Japan live

Most of Japan's people live near the coasts. The Pacific coast from Tokyo to Kobe is the most densely populated area. The mountainous interiors of the islands are thinly settled.



people who have suffered the most injustices are a group of Japanese known as the *burakumin* or *eta*. The burakumin number about 1,120,000. They come from villages traditionally associated with such tasks as the execution of criminals, the slaughter of cattle, and the tanning of leather. According to Buddhism, one of the major religions in Japan, these tasks and the people who perform them are considered unclean. As a result, the burakumin—though not ethnically different from other Japanese—have long been discriminated against. Many of the burakumin live in segregated urban slums or special villages. The burakumin have started an active social movement to achieve fair treatment, but they have had only limited success so far.

**Language.** Japanese is the official language of Japan. Spoken Japanese has many local dialects. These local dialects differ greatly in pronunciation. However, the Tokyo dialect is the standard form of spoken Japanese. Almost all the people understand the Tokyo dialect, which is used in schools and on radio and television. Many Japanese can also speak some English. A number of Japanese words, such as *aisu kuriimu* (ice cream) and *guruupu* (group), are based on the English language.

Written Japanese is considered to be one of the most difficult writing systems in the world. It uses Japanese *phonetic symbols* that represent sounds as well as Chinese *characters*. Each character is a symbol that stands for a complete word or syllable. Schools in Japan also teach students to write the Japanese language with the letters of the Roman alphabet. For additional information, see the article **Japanese language**.

### Way of life

**City life.** About three-fourths of the Japanese people live in urban areas. A large share of the urban population is concentrated in the four major metropolitan areas of Tokyo, Yokohama, Osaka, and Nagoya—all on the island of Honshu. In many ways, Japan's big cities resemble those of Western countries. Tall concrete and steel office buildings crowd commercial districts. Traffic fills wide highways during rush hours. Extensive networks of modern surface and underground trains carry millions of people to and from work. Numerous restaurants serve everything from hamburgers, hot dogs, and pizza to the finest European and Asian cuisine. Many large Japanese cities offer the latest films, music, and plays from all parts of the world.

Even in the biggest Japanese cities, however, many old customs still flourish. Tiny shops on narrow side streets specialize in traditional items, such as straw mats called *tatami*, which are used as floor coverings. Modern stationery stores sell not only ballpoint pens but also special brushes and sticks of ink for Japanese *calligraphy* (the art of fine handwriting). Toyshops have the latest electronic games, as well as dolls dressed in traditional Japanese clothing. Even the most crowded cities have beautiful gardens, parks, and shrines—all of which reflect the Japanese love of nature. Many city residents attend performances of traditional Japanese drama and music and take part in traditional festivals.

Most Japanese city dwellers enjoy a comfortable standard of living. There are some poor neighbourhoods but few slums. Many city people work in banks, factories, hotels, offices, restaurants, and stores. Some own businesses. Others hold government or professional jobs. Japan has a low unemployment rate. The Japanese economy is so strong that most people can find jobs. In addition, some large corporations in Japan guarantee their workers lifetime employment.

City housing includes modern apartment buildings and traditional Japanese houses. Most traditional houses



**A traditional Japanese house** blends with the natural beauty around it. Many such houses feature lovely gardens, graceful tile roofs, and sliding paper screens between rooms.



**A traditional Japanese meal** is served in attractively arranged dishes that emphasize the colours and shapes of the foods. Most such meals are eaten with chopsticks at low tables.



**A modern dining area** in a Tokyo office building reflects Western eating habits. Many Japanese workers buy their lunch at fast-food restaurants like those in Western countries.

are simple one- or two-storey wooden buildings with graceful tile roofs. Many of these houses are set within walled gardens. The floor level is above that of the entrance. People leave their shoes in an entranceway and put on slippers after they step up into the main living area. Rooms are separated by sliding paper screens, which can be rearranged to change the size or shape of the rooms.

In traditional rooms, tatami cover the floors. The people sit on cushions and spread out padded quilts, called *futons*, for bedding. The futons are folded and put away in the daytime. This enables a room to serve as a bedroom at night and a living room during the day—a great advantage because most dwellings are small. The principal room in a traditional house has a *tokonoma* (nook) in one wall. A decorative scroll hangs there, with a flower arrangement in front of it. Many Japanese apartments and houses have one or more rooms with Western-style

furniture and with carpets instead of traditional tatami.

Japan's big cities, like big cities in many other countries, face such serious problems as housing shortages, overcrowded streets and highways, and air and water pollution. However, crime is not as serious a problem in Japan as it is in most Western countries. The crime rate in the major Japanese cities is much lower than the rate in large Western cities. In Tokyo, for example, it is safe to use public transport and to walk on most city streets at any hour of the day or night.

**Rural life.** Only about a fourth of the Japanese people live in rural areas. Farm families make up most of the rural population. In rural areas along the coasts, some Japanese make their living by fishing and harvesting edible seaweeds. Most rural workers do not earn as much as city dwellers. But the standard of living in rural Japan has increased steadily since World War II. Almost all rural families have at least one colour television set, and many have a car. Most rural houses have a washing machine, a refrigerator, and other modern appliances.

Almost all Japanese farmers own their land. Most families can afford some farm machinery. Even on tiny farms, small petrol-powered tractors have replaced the oxen once used in ploughing fields. Japanese farms are extremely productive because of the use of chemical fertilizers, insecticides, and advanced agricultural methods. Among most farm families, at least one member adds to the family income by holding a part-time job in a nearby city or town. Some industries have established factories in rural areas because of the availability of these part-time labourers.

Most rural families live in traditional Japanese-style wooden houses much like those in the cities. Country houses have one to four rooms. Older dwellings have thatched roofs. Newer ones have metal or tile roofs.

Since the late 1950's, many of Japan's rural people have moved to urban areas to seek better-paying jobs in business and industry. Farming has increasingly become an occupation for older men and women as their children leave home to look for work in the cities.



**New apartment buildings** provide homes for many Japanese city dwellers. However, construction has not kept pace with demand, and many Japanese cities have severe housing shortages.



**Family life** has always been important in Japan. Before 1945, many Japanese lived in large family units that included grandparents, parents, children, and sometimes uncles and their families. Japanese families were bound together by a strict set of customs. Husbands had complete authority over their wives, and children were expected to show unquestioning obedience to their parents. When a child was old enough to marry, the parents selected a suitable marriage partner. In some cases, the bride and groom had never met before the wedding.

Today, most Japanese live in smaller family units that consist of only parents and children. The Japanese still have strong family ties and a deep respect for authority. But since the end of World War II, relationships within families have become less formal and more democratic. Children are given much greater freedom. Some parents still play a role in arranging their children's marriages. But most young people now select their own marriage partners on the basis of shared interests and mutual attraction. In some families, the oldest son is expected to carry on the father's profession. But many parents allow their sons to choose their own careers.

The Constitution of 1947 guarantees equal rights for women in all fields. Today, more and more Japanese women are taking jobs outside the home. Many women work until marriage and return to work after their children have started school. Some Japanese women are active in social and political organizations.

**Clothing.** The Japanese have always placed great importance on their clothes. Today, most of the people wear Western-style clothing outside the home. Many city dwellers keep up with the newest styles by Japanese, American, and European fashion designers. Some Japanese, especially older people, still wear traditional clothing at home. But even in the home, casual Western clothes are becoming more and more popular.



**A three-decker driving range** enables large crowds of Japanese golfers to practise their shots. Golf is a popular sport in Japan, and the country has hundreds of golf courses.

The traditional Japanese garment of both men and women is the kimono. It is tied around the waist with a sash called an *obi*. Almost all Japanese wear kimonos during festivals, on holidays, and on other special occasions. On extremely formal occasions, a Japanese man may wear wide, pleated trousers called *hakama* with a short, wide-sleeved coat called a *haori*.

Traditional Japanese footwear includes wooden clogs called *geta* and flat sandals known as *zori*. Leather shoes are worn with Western-style clothing. The Japanese remove all outdoor footwear when entering a house. Only slippers are worn indoors.

**Food and drink.** The main food of the Japanese people is rice. It is often simply boiled and eaten with pickled vegetables, such as pickled cabbage, cucumbers, eggplant, or radishes. The Japanese people serve rice at almost every meal.

Fish provides the chief source of protein in the Japanese diet. A favourite method of preparing fish is to salt it and then grill it over an open flame. The people also enjoy *sashimi*—thin slices of raw fish. A popular Japanese dish called *sushi* consists of rice flavoured with vinegar and topped with raw fish, sliced vegetables, shellfish, foods wrapped in seaweed, or other ingredients. Other traditional dishes include *sukiyaki* (beef cooked with vegetables) and *tempura* (fish and vegetables fried in batter). Favourite Japanese snacks include various kinds of noodles in broth and *yakitori*, charcoal-grilled pieces of poultry on a skewer.

Soybeans are another major source of protein in Japan. Many dishes contain *miso* (soybean paste) or *tofu* (soybean curd cake). Soy sauce—a salty, brown sauce made from soybeans—is widely used to flavour foods. The Japanese people also eat many types of fruits and several varieties of seaweed. Tea has long been the favourite beverage. Popular alcoholic drinks include *sake*, a winelike beverage made from rice, and beer.

Fresh ingredients are highly important in Japanese cooking because cooks try to bring out the natural flavour of foods rather than use sauces or spices. Meals



**Skiers flock to Japan's many ski resorts every winter.** Skiing and ice skating are favourite winter sports in the country. Japan's numerous snow-covered mountains provide superb ski areas.



**Huge wrestlers** parade around the ring before an exhibition of *sumo*, a Japanese style of wrestling. Sumo tournaments attract big, enthusiastic crowds. Many matches are televised.

are usually eaten at low tables. The Japanese take great care to arrange foods attractively in lacquer or porcelain dishes. Each kind of food is served in a separate dish, which is chosen to emphasize the food's colour, shape, and texture. The Japanese eat with chopsticks.

Since the 1950's, the Japanese diet has been changing. The people are eating more meat and dairy products, and many Japanese are substituting bread for rice at some meals. The diet of most of the people supplies all the important nutritional elements. Few Japanese suffer from malnutrition.

**Recreation.** The Japanese people enjoy a wide variety of sports, hobbies, and other leisure-time activities. Their favourite spectator sports are baseball and a Japanese form of wrestling called *sumo*. Other popular sports include bowling, golf, ice skating, skiing, table tennis, tennis, and volleyball. Many Japanese practise *aikido*, *judo*, and *karate*, traditional Oriental martial arts

that involve fighting without weapons. Another popular sport is *kendo*, a Japanese form of fencing in which bamboo or wooden sticks are used for swords. Many Japanese also fish, hunt, jog, and go mountain climbing.

Calligraphy and traditional chanting and dancing are favourite pastimes in Japan. Some Japanese play traditional or Western musical instruments for recreation. Japan has many clubs for the writing of *haiku* and *tanka*, two forms of Japanese poetry. Members gather to compose poems and to judge one another's work. The Japanese like to travel in their beautiful country, which has numerous inns, hot spring resorts, and other lodging places. Many people in cities play a pinball game called *pachinko*. Tokyo has hundreds of pachinko parlours.

Concerts, plays, and films attract large audiences in Japan. Coffee houses and tearooms are popular places for friends to meet. Many Japanese enjoy dining in restaurants. At some of the older Japanese-style restaurants, young women called *geisha* entertain patrons. The geisha have been trained from childhood in the arts of conversation, dance, and music.

The Japanese celebrate many festivals during the year. One of the most popular celebrations is the New Year's Day Festival, which begins on January 1. On this day, the Japanese dress in their fanciest, most colourful kimonos. People visit their friends and relatives and exchange gifts. Dances, parades, and many sporting events are held throughout the country. At home, families enjoy delicious feasts and play traditional games. Although the festival officially ends on January 3, some celebrations continue until the middle of the month.

**Religion.** Japan's oldest religion is Shinto, which means *the way of the gods*. It is the native religion of Japan and dates from prehistoric times. Shintoists worship many gods, called *kami*, which are found in mountains, rivers, rocks, trees, and other parts of nature. Shinto also involves ancestor worship. In 1868, the Japanese government established an official religion called State Shinto. State Shinto stressed patriotism and the worship of the emperor as a divine being. The govern-

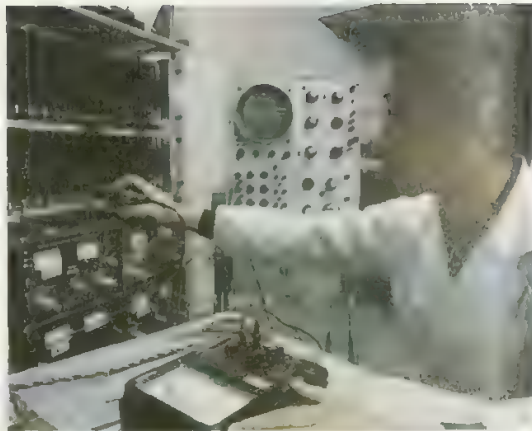


**Buddhism and Shinto** have millions of followers in Japan. Many Japanese Buddhists visit the *Great Buddha*, a huge bronze statue of the religion's founder in Kamakura, left. Shinto is the native religion of Japan. The procession on the right is part of a Shinto festival.





**A calligraphy class** teaches Japanese primary school pupils the art of fine handwriting. Pupils spend much time learning to read and write the difficult Japanese language.



**An electronics laboratory** at the University of Tokyo helps prepare students for jobs in industry. The University of Tokyo is Japan's best-known institution of higher learning.

ment abolished State Shinto after World War II, and the emperor declared that he was not divine.

Many characteristics of the Japanese people—such as their love of cleanliness and of simple, natural things—originate from Shinto. More than 90 per cent of Japan's population are Shintoists. But almost all Japanese, regardless of their religion, perform some of the daily and seasonal acts and ceremonies of Shinto. See **Shinto**.

About 75 per cent of the Japanese people practise Buddhism. Many of these people also follow Shinto. In fact, most Shintoists and Buddhists in Japan observe elements of both religions. For example, they may celebrate births and marriages with Shinto ceremonies but observe funerals with Buddhist ceremonies. Buddhism came to Japan from China and Korea about A.D. 552. Generally, Buddhists believe that a person can obtain perfect peace and happiness by leading a life of virtue and wisdom. Buddhism stresses the unimportance of worldly things. Much of traditional Japanese culture reflects Buddhist philosophy. See **Buddhism**.

Christians make up less than 1 per cent of Japan's population. Spanish and Portuguese missionaries first brought Christianity to Japan about 1550. Protestants slightly outnumber Roman Catholics among Japanese Christians. Since World War II, religious sects called *New Religions* have developed in Japan. Some contain elements of Buddhism, Christianity, or Shinto. Others combine beliefs from all three. The largest of the New Religions is the *Soka Gakkai*, a Buddhist sect.

Confucianism, a Chinese religion, has had great influence in Japan, though it never became strongly organized there. Confucianism stresses the importance of moral standards and of respect for authority. It also emphasizes reverence for one's ancestors and for the past. The Japanese have adopted many Confucian ideas in their moral teachings. See **Confucianism**.

**Education.** Japanese law requires children to complete six years of primary school and three years of junior secondary school. Education at state-owned schools is free during these nine years for children from 6 to 14

years of age. Almost all Japanese children complete the education requirements. Pupils attend classes  $5\frac{1}{2}$  days a week. The Japanese school year runs from April to March of the following year, with a holiday from late July to August.

Japanese primary and junior secondary school pupils study such subjects as art, homemaking, the Japanese language, mathematics, moral education, music, physical education, science, and social studies. In addition, many junior secondary school pupils study English or another foreign language. Pupils spend much time learning to read and write Japanese because the language is so difficult. The country has an exceptionally high literacy rate. Almost all Japanese aged 15 or older can read and write.

After junior secondary school, students may attend senior secondary school for three years. To enter senior secondary school, they must pass an entrance examination. Classes include many of the same subjects studied in junior secondary school. But senior secondary schools also prepare students for college or train them for jobs. About 95 per cent of those who complete junior secondary school go on to senior secondary school.

Japan has about 460 universities and about 600 junior and technical colleges. The largest university is Nihon University in Tokyo, which has about 80,000 students. The country has about 90 National Universities, which are supported by the government. Some of these universities—such as the University of Tokyo and the University of Kyoto—have exceptionally high reputations. Highly regarded private universities include Doshisha University in Kyoto and Keio University and Waseda University in Tokyo.

Senior secondary school students who want to attend a college or university must pass the entrance examination given by the school of their choice. Large numbers of students compete for admission to the top Japanese universities. About 38 per cent of those who complete senior secondary school go on to an institution of higher learning.

## Arts

For hundreds of years, Chinese arts had a great influence on Japanese arts. A Western influence began about 1870. However, there has always been a distinctive Japanese quality about the country's art.

**Music.** Traditional Japanese music may sound thin compared with the rich harmonies of Western music. Most forms of Japanese music feature one instrument or voice or a group of instruments that follows the same melodic line instead of blending in harmony. Japanese instruments include the lutelike *biwa*; the zitherlike *koto*; and the three-stringed banjolike *samisen*, or *shamisen*. Traditional music also features drums, flutes, and gongs. Performances of traditional music draw large crowds in Japan. Most types of Western music are also popular. Many Japanese cities have their own professional symphony orchestras that specialize in Western music. See Music (Asian music).

**Theatre.** The oldest form of traditional Japanese drama is the *no* play, which developed during the 1300's. No plays are serious treatments of history and legend. Masked actors perform the story with carefully controlled gestures and movements. A chorus chants most of the important lines in the play.

Two other forms of traditional Japanese drama—the puppet theatre and the *kabuki* play—developed during the late 1600's. In the puppet theatre, a narrator recites the story, which is acted out by large, lifelike puppets. The puppet handlers work silently on the stage in view of the audience. *Kabuki* plays are melodramatic representations of historical or domestic events. *Kabuki* features colourful costumes and makeup, spectacular scenery, and a lively and exaggerated acting style. See Drama (Japan; picture).

The traditional types of theatre remain popular in Japan. But the people also enjoy new dramas by Japanese playwrights, as well as Western plays.

**Literature.** Japan has a rich literary heritage. Much of the country's literature deals with the fleeting quality of human life and the never-ending flow of time. *The Tale*



Court musicians perform *gagaku*, the official music of the imperial court and one of the oldest forms of Japanese music. They are playing traditional wind instruments made of bamboo.

*of Genji*, a long novel written during the early 1000's, is generally considered the greatest work of Japanese fiction. See Japanese literature.

**Sculpture.** Some of the earliest Japanese sculptures were *haniwa*, small clay figures made from the A.D. 200's to 500's. *Haniwa* were placed in the burial mounds of important Japanese. The figures represented animals, servants, warriors, and objects of everyday use. Japanese sculptors created some of their finest works for Buddhist temples. The sculptors worked chiefly with wood, but they also used clay and bronze. The most famous bronze statue in Japan, the *Great Buddha* at Kamakura, was cast in the 1200's. See Sculpture (Japan; picture).

**Painting.** Early Japanese painting dealt with Buddhist subjects, using compositions and techniques from China. From the late 1100's to the early 1300's, many Japanese artists painted long picture scrolls. These scrolls realistically portrayed historical tales, legends, and other stories in a series of pictures. Ink painting flour-



**Kabuki**, a traditional form of Japanese drama, features chanting, colourful costumes and makeup, music, and a lively and exaggerated acting style. *Kabuki* plays are melodramatic portrayals of historical or domestic events. The Japanese developed *kabuki* theatre during the late 1600's.



ished in Japan from the early 1300's to the mid-1500's. Many of these paintings featured black brushstrokes on a white background.

During the mid-1500's and early 1600's, a decorative style of painting developed in Japan. Artists used bright colours and elaborate designs and added gold leaf to their paintings. From the 1600's to the late 1800's, artists created colourful wood-block prints. Printmaking is still popular in Japan. See **Painting** (Japanese painting; pictures); **Japanese print**.

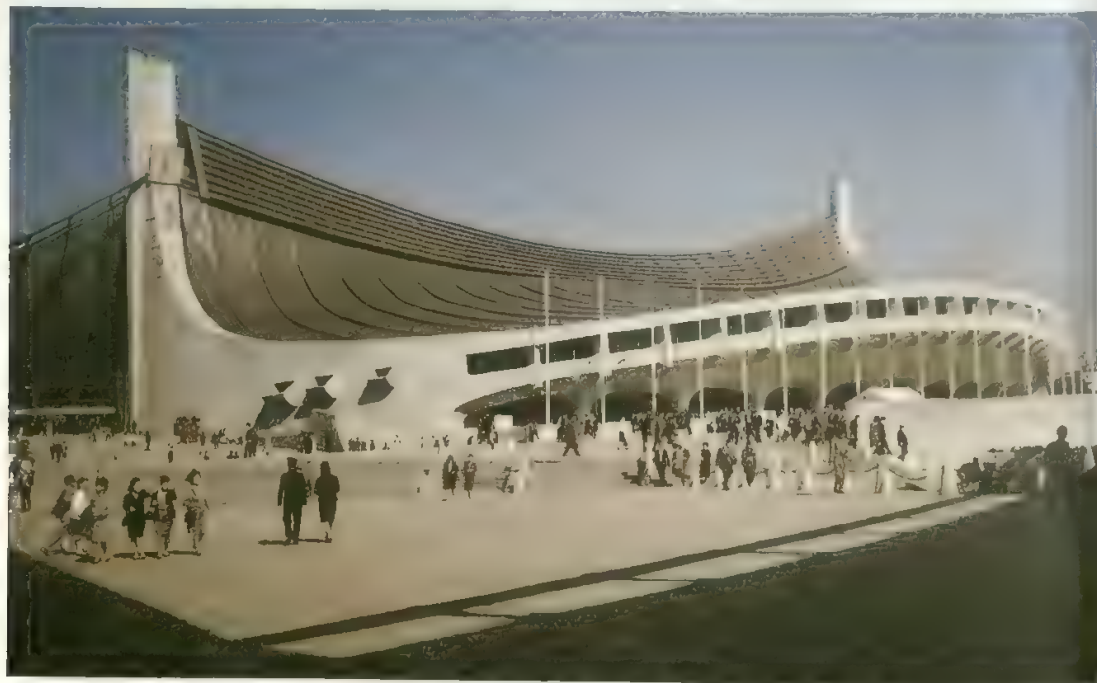
**Architecture.** Many architectural monuments in Japan are Buddhist temples. These temples have large tile roofs with extending edges that curve gracefully upward. Traditional Shinto shrines are wooden frame structures noted for their graceful lines and sense of proportion. The simple style of Shinto architecture has influenced the design of many modern buildings in Japan. Japanese architecture emphasizes harmony between buildings and the natural beauty around them. Landscape gardening is a highly developed art in Japan. See **Architecture** (Japanese architecture; picture).

**Other arts.** Japan ranks among the world's leading producers of feature films. Many Japanese films have earned international praise. The Japanese have long been famous for their ceramics, ivory carving, lacquer ware, and silk weaving and embroidery. Other traditional arts include flower arranging, *cloisonné* (a type of decorative enamelling), and *origami* (the art of folding paper into decorative objects). See **Lacquer ware**; **Flower** (Flower arranging; pictures); **Origami**.



Detail of *The Siege of Osaka Castle* (1615), a painting on a paper screen by Kuroda Nagamasa, Kuroda Collection, Japan

**Decorative painting** flourished in Japan from the mid-1500's to the early 1600's. This painted screen shows the lavish use of gold leaf characteristic of many works from this period.



**The National Stadium of Tokyo** shows the influence of traditional Japanese architecture in the gracefully curving lines of the structure's roof. The stadium, designed by the Japanese architect Kenzo Tange, was constructed in 1964 for the Summer Olympic Games held in Tokyo that year.

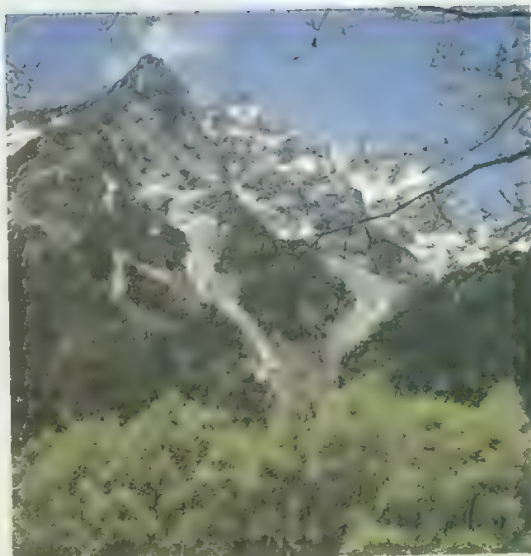
## Land

Japan is a land of great natural beauty. Mountains and hills cover about 70 per cent of the country. In fact, the Japanese islands consist of the rugged upper part of a great mountain range that rises from the floor of the North Pacific Ocean. Jagged peaks, rocky gorges, and thundering mountain waterfalls provide some of the country's most spectacular scenery. Thick forests thrive on the mountainsides, adding to the scenic beauty of the Japanese islands. Forests cover about 68 per cent of the country's land.

Japan lies on an extremely unstable part of the earth's crust. As a result, the land is constantly shifting. This shifting causes two of Japan's most striking natural features—earthquakes and volcanoes. The Japanese islands have about 1,500 earthquakes a year. Most of them are minor tremors that cause little damage, but severe earthquakes occur every few years. Undersea quakes sometimes cause huge, destructive sea waves along Japan's Pacific coast. These waves are called *tsunami*, or "tidal waves," though they have nothing to do with tides. The Japanese islands have more than 150 major volcanoes. Over 60 of the volcanoes are active.

Numerous short, swift rivers cross Japan's rugged surface. Most of the rivers are too shallow and steep to be navigated. But their waters are used to irrigate farmland, and their rapids and falls supply power for hydroelectric plants. Many lakes nestle among the Japanese mountains. Some lie in the craters of extinct volcanoes. A large number of hot springs gush from the ground throughout the country.

The Japanese islands have a total land area of about 377,708 square kilometres. The four main islands, in order of size, are Honshu, Hokkaido, Kyushu, and Shikoku. Thousands of smaller islands and islets lie near these major islands. Japan's territory also includes the Ryukyu and Bonin island chains. The Pacific Ocean lies to the east and south of Japan. The Sea of Japan washes



**The Japanese Alps** are the highest mountains in Japan. Their towering peaks rise in central Honshu, the country's largest island. Thick forests thrive on the mountainsides.

the country's west coast. Japan's four chief islands have 7,448 kilometres of coastline.

**Honshu**, Japan's largest island, has an area of 227,414 square kilometres. About 80 per cent of the Japanese people live on Honshu.

Three mountain ranges run side by side across northern Honshu. Most of the people in this area live in small mountain valleys. Agriculture is the chief occupation. East of the ranges, along the Pacific, lies the Sendai Plain. West of the mountains, the Echigo Plain extends to the Sea of Japan.

The towering peaks of the Japanese Alps, Japan's



**The Ishikari Plain** is the largest lowland and the chief farming region on Hokkaido, the northernmost of the four main Japanese islands. The Ishikari River cuts across the plain. Much of the rest of Hokkaido consists of forested mountains and hills.



highest mountains, rise in central Honshu. East of these mountains, a chain of volcanoes cuts across the centre of the island. Japan's tallest and most famous peak, Mount Fuji, or Fujiyama, is one of these volcanoes. Mount Fuji, which is inactive, rises 3,776 metres above sea level. The Kanto Plain, the country's largest lowland, spreads east from the Japanese Alps to the Pacific. This lowland is an important centre of agriculture and industry. Tokyo stands on the Kanto Plain. Two other major agricultural and industrial lowlands—the Nobi Plain and Osaka Plain—lie south and west of the Kanto region.

Most of southwestern Honshu consists of rugged, mountainous land. Farming and fishing villages and some industrial cities lie on small lowlands scattered throughout this region.

**Hokkaido**, the northernmost of Japan's four major islands, covers 78,073 square kilometres. It is the country's second largest island but has only about 5 per cent of Japan's total population. Much of the island consists of forested mountains and hills. A hilly, curved peninsula extends from southwestern Hokkaido. Northeast of this peninsula is the Ishikari Plain, Hokkaido's largest lowland and chief agricultural region. Smaller plains border the island's east coast. The economy of Hokkaido depends mainly on dairy farming, fishing, and forestry. The island is also a popular recreational area. Long winters and heavy snowfall make Hokkaido ideal for winter sports.

**Kyushu**, the southernmost of the main islands, occupies 36,554 square kilometres. After Honshu, Kyushu is Japan's most heavily populated island, with about 11 per cent of the population. A chain of steep-walled, heavily forested mountains runs down the centre of the island. Northwestern Kyushu consists of rolling hills and wide plains. Many cities are found in this heavily industrial-



**Rugged terrain** covers much of Kyushu, the southernmost of Japan's chief islands. Wooded islands lie in the small natural harbours along Kyushu's jagged west coast.



**Scenic farms** dot many hillsides on Shikoku, the smallest of the main Japanese islands. Shikoku has no large lowlands for farming. Mountains and hills cover much of the island.

ized area. Kyushu's largest plain and chief farming district is located along the west coast.

The northeastern and southern sections of Kyushu have many volcanoes, high lava plateaus, and large deposits of volcanic ash. In both regions, only small patches of land along the coasts and inland can be farmed. Farmers grow some crops on level strips of land cut out from the steep sides of the lava plateaus.

**Shikoku**, the smallest of the main Japanese islands, covers 18,256 square kilometres. About 3 per cent of the Japanese people live on the island. Shikoku has no large lowlands. Mountains cross the island from east to west. Most of the people live in northern Shikoku, where the land slopes downward to the Inland Sea. Hundreds of hilly, wooded islands dot this beautiful body of water. Farmers grow rice and a variety of fruits on the fertile land along the Inland Sea. Copper mining is also important in this area. A narrow plain borders Shikoku's south coast. There, farmers grow rice and many kinds of vegetables.

**The Ryukyu and Bonin Islands** belonged to Japan until after World War II, when the United States took control of them. The United States returned the northern Ryukyus to Japan in 1953 and the Bonins in 1968. In 1972, it returned the rest of the Ryukyu Islands, including Okinawa, the largest and most important island of the group.

More than 100 islands make up the Ryukyus. They extend from Kyushu to Taiwan and have about a million people. The Ryukyu Islands consist of the peaks of a submerged mountain range. Some of the islands have active volcanoes. The Ryukyu Islands cover a total land area of 3,120 square kilometres. The Bonins lie about 970 kilometres southeast of Japan and consist of 97 volcanic islands, whose combined area is 106 square kilo-

# Japan Terrain map

-  International boundary
-  Elevation above sea level
-  City



## Physical features

Abukuma Mountains	D 6	Honshu (Island)	E 4	Kii Peninsula	F 4	Okujiri Island	B 5	Shiono Cape	F 4
Agano River	D 5	Inawashiro Lake	D 5	Kitakami Mountains	C 6	Osaka Plain	E 5	Soya Point	A 6
Amakusa Islands	F 1	Inland Sea	F 2	Kitami Mountains	A 6	Oshima (Island)	E 5	Suo Sea	F 2
Asahi Mountain	A 6	Ise Bay	E 4	Korea Strait	E 1	Oshima Peninsula	B 5	Suruga Bay	E 5
Awaji Island	F 3	Ishikari Plain	B 6	Kushiro Plain	A 7	Osumi Islands	G 1	Tanaga Island	G 2
Biwa Lake	C 4	Ishinomaki Bay	D 6	Kyushu (Island)	G 2	Osumi Peninsula	C 2	Tokachi Plain	B 6
Boso Peninsula	C 5	Izu Islands	E 5	Kyushu Mountains	G 1	Ou Mountains	D 6	Tokyo Bay	E 5
Bungo Channel	F 2	Izu Peninsula	E 4	Mikumi Mountains	D 5	Sado (Island)	D 5	Tone River	E 5
Chugoku Mountains	E 3	Japanese Alps	E 4	Mount Fuji	E 5	Sagami Bay	C 1	Toyama Bay	D 4
Echigo Plain	D 5	Kagoshima Bay	F 1	Mutsu Bay	C 6	Satsuma Peninsula	E 5	Tsugaru Peninsula	C 5
Enshu Bight	F 4	Kanmon Strait	G 1	Nemuro Peninsula	A 7	Sea of Japan	C 3	Tsugaru Strait	B 5
Ermo Cape	B 6	Kanto Mountains	E 5	Nobi Plain	D 4	Sendai Plain	D 6	Tsushima (Islands)	E 5
Esan Point	B 6	Kasumiga Lake	E 6	Noto Peninsula	C 5	Shikoku (Island)	F 3	Uchiura Bay	B 5
Goto Islands	F 1	Kii Channel	F 3	Oga Peninsula	C 5	Shikoku Mountains	F 3	Wakasa Bay	E 4
Hidaka Mountains	B 6	Kii Mountains	F 4	Oki Peninsula	D 6	Shimane Peninsula	B 6	Yaku Island	G 1
Hokkaido (Island)	A 6			Oki Islands	E 3	Shimokita Peninsula	B 6		



metres. About 1,900 people live on the islands. See Bonin Islands; Ryukyu Islands.

Climate

The climates of the Japanese islands vary considerably from south to north. The southern islands of Kyushu and Shikoku have a warm temperate climate, much like the southeastern coastlands of Queensland, Australia, with long hot summers and mild winters. Honshu has warm, humid summers. Winters are mild in the south, but are more cold and snowy in the north. Honshu has sunny autumns and springs. Hokkaido, in the north, with its cool summers and cold, snowy winters, has a climate like that of southern Sweden.

Two Pacific Ocean currents—the Japan Current and the Oyashio Current—influence Japan's climate. The warm, dark-blue Japan Current flows northward along the country's south coast and along the east coast as far north as Tokyo (see Japan Current). The Japan Current



Cherry blossoms mark the coming of spring in Japan. The time when the blooms appear ranges from March in the warm, southern regions to late May in the colder regions of the north.

Average monthly weather

Tokyo					Days of rain or snow	Sapporo					Days of rain or snow
Temperatures				Temperatures							
F.	C.			F.		C.					
	High	Low	High	Low		High	Low	High	Low		
Jan.	48	33	8	-1	5	Jan.	28	12	-2	-11	9
Feb.	48	33	9	-1	5	Feb.	30	12	-1	-11	9
Mar.	54	36	12	2	6	Mar.	36	19	2	-7	13
Apr.	63	45	17	8	3	Apr.	52	32	11	0	3
May	76	54	21	12	2	May	61	41	16	5	13
June	81	63	24	17	1	June	68	50	20	10	13
July	82	73	28	21	0	July	75	59	24	15	13
Aug.	86	72	30	22	13	Aug.	79	61	26	16	13
Sept.	79	66	26	19	17	Sept.	72	52	22	11	17
Oct.	68	54	20	12	14	Oct.	61	39	16	4	17
Nov.	61	45	16	6	1	Nov.	46	28	8	-2	9
Dec.	52	34	11	1	1	Dec.	34	18	1	-8	9

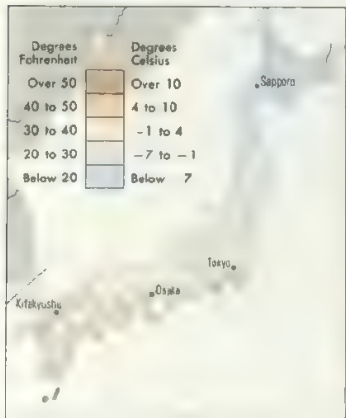
has a warming effect on the climate of these regions. The cold Oyashio Current flows southward along the east coasts of Hokkaido and northern Honshu, cooling these areas.

Seasonal winds called *monsoons* also affect Japan's climate. In winter, monsoons from the northwest bring cold air to northern Japan. These winds, which gather moisture as they cross the Sea of Japan, deposit heavy snows on the country's northwest coast. During the summer, monsoons blow from the southeast, carrying warm, moist air from the Pacific Ocean. Summer monsoons cause hot, humid weather in central and southern Japan.

Rain is abundant throughout most of Japan. All areas of the country—except eastern Hokkaido—receive at least 100 centimetres of rain yearly. Japan has two major rainy seasons—from mid-June to early July and from

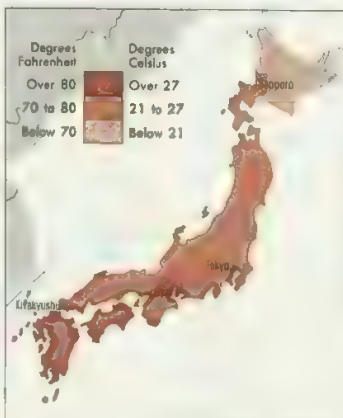
Average January temperatures

In winter, winds from the mainland of Asia bring cold weather to northern Japan. Winters are mild in the south.



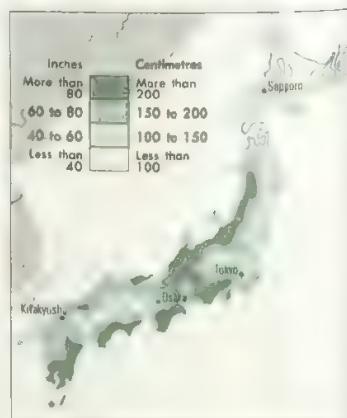
Average August temperatures

In summer, most of Japan has hot, humid weather. Ocean currents flowing near the islands bring warm, moist air.



Average yearly precipitation

Japan has abundant rainfall. Winds called *monsoons* bring rain in summer. In winter, snow falls over much of Japan.



September to October. Several typhoons strike the country each year, chiefly in late summer and early autumn. The heavy rains and violent winds of these storms often do great damage to houses and crops.

### Economy

Since the end of World War II, Japan has become a major economic power. The country has the world's second largest economy in terms of its *gross domestic product* (GDP). The GDP is the total value of all goods and services produced within a country yearly. Only the United States has a greater GDP than Japan has.

Japan has developed a strong, rapidly growing economy in spite of having very limited natural resources. The country must import many of the raw materials needed by its manufacturing industries. In order to pay for these imported materials, Japan sells the products of its factories to many other countries throughout the world. Thus, the Japanese economy depends heavily on foreign trade.

Japan's defeat in World War II severely damaged its economy. Many of the country's factories were destroyed. But the Japanese amazed the world by quickly overcoming the effects of the war. The United States provided financial aid to help Japan rebuild its factories. The Japanese invested in the latest technology to make their postwar industries highly productive. Japan soon began to sell high-quality manufactured items to other countries. By the late 1960's, the hardworking, skilful Japanese people had rebuilt their country into a leading industrial nation.

**Manufacturing** is the single most important economic activity in Japan. It accounts for about 30 per cent of Japan's gross domestic product and employs about 24 per cent of all workers. Japan's industrial growth rate ranks among the highest in the world. From 1970 to 1980, for example, the country's industrial output more than tripled.

Japan's manufactured products, which range from tiny electronic devices to huge oil tankers, are world famous for their high quality and standards of performance. Japanese factories use the most advanced equip-



**Advanced technology** has helped make Japan a major industrial country. At the car-manufacturing plant above, robots on the assembly line weld car bodies.



**Thousands of Japanese cars** await shipment to other countries at a huge wharf near Nagoya, above. The production of cars ranks as one of Japan's leading industries.

ment and processes, and manufacturers continually invest in new technology to make production cheaper and more efficient. As a result, Japan exports its goods at competitive prices. Japanese products are in great demand on the world market.

The production of transportation equipment is the most important Japanese industry. Japan produces about 9 million cars each year, making it a leading car-manufacturing country. Japan is also a leading ship-building country.

One of the fastest-growing industries in Japan is the production of machinery, including heavy electrical and nonelectrical machines, electrical appliances, and electronic equipment. Large quantities of Japanese electronics products, such as calculators, computers, radios, record players, tape recorders, and television sets, are sold throughout the world. Japan is also noted for its production of high-quality precision instruments, such as binoculars, cameras, and clocks and watches.

Japan is one of the top producers of iron and steel. Much of its steel is exported. Japan has a thriving chemical industry. Important products of this industry include *petrochemicals* (chemicals made from petroleum or natural gas) and petrochemical products, such as plastics and synthetic fibres. In addition, Japan is one of the leading producers of cement, ceramics, clothing, fabricated metal products, food products, paper products, raw silk, textiles, and timber and wood products.

Manufacturing in Japan is concentrated in five main regions. For the location of each region and a listing of its main products, see the map titled *Economy of Japan* in this section of the article.

**Agriculture** accounts for about 2 per cent of Japan's



gross domestic product. Only about 15 per cent of the land in Japan can be cultivated. Nevertheless, Japanese farmers produce about 70 per cent of the food needed to feed the nation's people. Japan imports the rest.

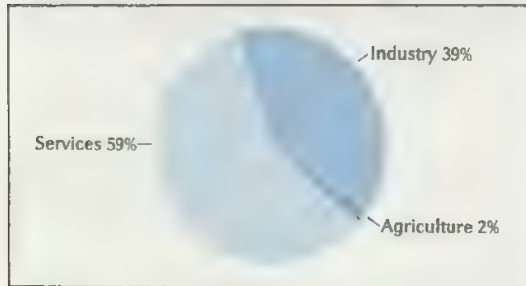
Japanese farms average only about 1 hectare. But they produce extremely high yields per unit of land. Japanese farmers make their land as productive as possible through the use of irrigation, improved seed varieties, and modern agricultural chemicals and machinery. The Japanese islands are so mountainous that level farmland is scarce. Farmers therefore grow some crops on *terraced fields*—that is, on level strips of land cut out of the hillsides. The terraces hold rainwater and prevent it from wearing away the soil on slopes.

The most important crop in Japan is rice. Japan is one of the world's leading rice-producing countries. Rice fields occupy more than 50 per cent of the country's farmland. Japanese farmers also grow a wide variety of



**Japanese agriculture** produces high yields from tiny farms because the land is made as productive as possible. But food must still be imported. These women are picking tea leaves.

### Japan's gross domestic product



Japan's gross domestic product (GDP) was 3,670,000,000,000 U.S. dollars in 1992. The GDP is the total value of goods and services produced within a country in a year. *Services* include community, social, and personal services; finance, insurance, and property; government; transportation and communication; wholesale and retail trade; and utilities. *Industry* includes construction and manufacturing. *Agriculture* includes agriculture, forestry, and fishing.

### Production and workers by economic activities

Economic activities	Per cent of GDP produced	Employed workers Number of people	Per cent of total
Manufacturing	30	15,690,000	24
Community, social, & personal services	18	15,110,000	27
Finance, insurance, & property	15	2,620,000	4
Wholesale & retail trade	14	14,360,000	22
Construction	9	6,190,000	10
Transportation & communication	6	3,850,000	6
Government	3	2,040,000	3
Utilities	3	330,000	1
Agriculture, forestry, & fishing	2	4,110,000	6
Mining	*	60,000	*
Total	100	64,360,000	100

\*Less than one-half of 1 per cent  
Figures are for 1992  
Source: Japan Centre for Economic Research

other crops, including sugar beet, tea, tobacco, and wheat. Mulberry bushes are grown on some hillsides. The leaves of these bushes are used to feed silkworms. Many types of fruit, including apples, mandarin oranges, pears, persimmons, and strawberries are grown in Japan. Common vegetables grown by Japanese farmers include aubergines, cabbage, carrots, Chinese cabbage, cucumbers, onions, potatoes, sweet potatoes, tomatoes, and white radishes. Since the 1950's, the Japanese have been eating increasing amounts of dairy products, eggs, and meat. More and more of the farmers in Japan are rearing cattle, chickens, and pigs.

Before World War II, many Japanese farmers rented all or part of their land from large landholders. These tenant farmers paid their landlords as much as 50 per cent of their harvest in rent. After the war, a large land-reform programme reduced the holdings of the landlords and enabled tenant farmers to buy the land they worked. As a result, about 90 per cent of Japanese farmers today own their land.

**Fishing industry.** Japan's annual fish catch totals



**The fishing industry of Japan** is among the world's largest. Fish are the chief source of animal protein in the Japanese diet. The dockworkers above are handling a tuna catch





make up another major group of service industries. Advertising agencies, data-processing services, property companies, restaurants, and many other business establishments also supply essential business, community, or personal services. Other service industries include trade, transportation, and communication.

**Energy sources.** Japan requires vast amounts of energy for its farms, factories, households, and motor vehicles. The country ranks among the world's leading producers of electric power.

Petroleum and natural gas provide about 68 per cent of Japan's energy. The country imports nearly all its petroleum and all its natural gas. Domestic oil production meets less than 1 per cent of the country's needs.

Japan buys much of its oil from Middle Eastern nations. It also faces possible fuel shortages if political instability in the Middle East interrupts supplies of oil. To avoid such shortages, the nation buys some petroleum from several countries outside the Middle East. In addition, Japan is exploring possible offshore sources of oil in the Korea Strait and the Sea of Japan.

Japan has fairly large deposits of coal on Hokkaido and Kyushu. However, the quality of much of the coal is poor. In addition, many coal deposits are thin, tilted, and badly broken—all of which make mining difficult and costly. As a result, petroleum has increasingly replaced coal as a source of power. Coal meets about 18 per cent of Japan's energy needs. Electricity generated by hydroelectric and nuclear power plants furnishes about 13 per cent of Japan's energy.

**Foreign trade.** Japan is one of the world's leading trading nations. Its imports and exports total more than 250 billion U.S. dollars annually. The country's main exports, in terms of value, are passenger cars, iron and steel, and electronic equipment. Other leading exports include electrical and nonelectrical machinery, motorcycles and trucks, plastics, precision instruments, ships, and synthetic fibre fabrics. Petroleum is Japan's chief import. It accounts for about 35 per cent of the total value of the country's imports. Other major imports include chemicals, coal, iron ore and other minerals, meat, natural gas, timber, and wheat.

The United States is Japan's main trading partner. Japan's other leading trading partners include Australia, Canada, China, Germany, Indonesia, Saudi Arabia, South Korea, and the United Arab Emirates.

Most of the time since the mid-1960's, Japan has had a favourable *balance of trade*—that is, the value of its exports has exceeded the value of its imports. Japan maintains a favourable trade balance by (1) exporting manufactured products throughout the world at competitive prices and (2) restricting imports, especially of manufactured products, by means of various trade barriers. The trade barriers include *tariffs* and *quotas*. Tariffs are taxes levied on imports to make them more expensive and thus encourage consumers to buy domestic products. A quota is a trade restriction that limits the quantity of imports allowed.

Japan's trade policies have contributed to unfavourable trade balances for countries that import large quantities of Japanese goods but face barriers to exporting their own goods to Japan. In the late 1970's and early



Japan's rail network is world famous. The bullet-shaped, high-speed electric train above is part of a large fleet of super-expresses that runs the length of the main island of Honshu.

1980's, a number of Japan's trading partners began criticizing the country's trade practices. They asked Japan to limit some of its exports and to lift obstacles to imports. To maintain good trade relations, Japan has begun responding to these requests. In the 1980's, it lowered some tariffs and removed some import quotas that violated an international treaty, the General Agreement on Tariffs and Trade (see *General Agreement on Tariffs and Trade*). But several of Japan's main trading partners still criticize their serious trade imbalances that remain in Japan's favour.

**Transportation and communication.** Japan has a modern, highly efficient transportation system, including highways, railways, and coastal shipping. All the major cities have extensive transport systems that include buses, trains, and underground railways.

Japan ranks second to the United States in registered passenger cars. It has about 29 million cars. Trucks carry about 45 per cent of the freight in Japan.

Japanese rail lines handle about 7 per cent of the nation's freight traffic and about 40 per cent of its passenger traffic. A six-company business unit known as Japan Railways Group operates about 75 per cent of the railways. Many small privately owned lines connect with the national system. In 1988, trains began operating between Honshu and Hokkaido through the Seikan Tunnel. Extending for 53.9 kilometres, this undersea tunnel ranks as the world's longest transportation tunnel.

Japan's merchant fleet totals about 40 million metric tons. Only Liberia and Panama have larger fleets. Japan's

chief ports are Chiba, Kobe, Nagoya, and Yokohama. Hundreds of smaller ports and harbours enable coastal shippers to serve every major city in Japan. Ships carry almost half of Japan's freight traffic.

Japan has many modern airports. Tokyo International, also called Haneda, is the country's busiest airport. It and Osaka International rank among the world's busiest airports. Much of the foreign air traffic to and from Tokyo arrives at New Tokyo International Airport, which is also called Narita Airport.

Japan has thriving publishing and broadcasting industries. The country has more than 125 daily newspapers. *Asahi Shimbun*, *Mainichi Shimbun*, and *Yomiuri Shimbun*, each published in five regional editions in the country, have the largest circulations. Japanese publishing houses produce more than 40,000 books annually. Almost every Japanese household has at least one television set—usually a colour set—and one or more radios.

The Japanese government operates the postal system. The country's telegraph and telephone systems are privately owned. About 90 per cent of all Japanese households have a telephone.

### History

**Early days.** Historians know little about the earliest days of Japan. The country's oldest written histories are the *Kojiki* (*Record of Ancient Matters*), dated A.D. 712, and the *Nihongi* or *Nihonshoki* (*Chronicles of Japan*), dated A.D. 720. However, these histories consist chiefly of myths and legends. They trace the origin of Japan to a divine brother and sister who gave birth to the Japanese islands and to Amaterasu, the sun goddess. According to legend, Jimmu Tenno, a descendant of the sun goddess, became the first emperor of Japan in 660 B.C. (see Jimmu Tenno).

The origins of the Japanese remain largely a mystery. Scientists know that people who hunted, fished, and gathered plant foods lived on the islands at least 6,500 years ago. By 200 B.C., farming was practised, and the people lived in villages. For more information on early

Japan, see the subsection *Ancestry* in this article.

From the A.D. 200's, Japan was controlled by warring *clans* (related families), each headed by a chief. Most of the clans lived on Kyushu and along the Inland Sea to what is now Kyoto. By about 400, the Yamato clan had become the most powerful one in central Japan. The chiefs of the clan are considered the ancestors of Japan's imperial family. See *Yamato period*.

**Influence of Chinese culture.** During the late 400's, new ideas and technology began arriving in Japan from China. The Japanese borrowed the Chinese system of writing and adopted their advanced methods of calculating the calendar. Confucianism was introduced from China and began to spread across Japan. About 552, Buddhism came to the country from China and Korea.

Prince Shotoku, who ruled Japan from 593 until his death in 622, encouraged the Japanese to adopt Chinese ideas. Shotoku wanted to increase the power of the Japanese emperor by adopting the Chinese system of centralized imperial rule. In 645, Kotoku became emperor. The next year, he and his advisers began the Taika Reform, a programme that introduced more features of the Chinese model of government. Japan was divided into provinces, districts, and villages. The provinces were controlled by governors, who reported to the emperor. The Taika Reform also introduced a central system of taxation and a land distribution programme.

In 794, the Japanese capital was established at Heian, later called Kyoto. Shortly after completion of the capital, the form of government adopted from China began to weaken. In 858, the emperor and his court fell under the control of the Fujiwaras, a powerful noble family.

The Fujiwaras gained power over the emperor and the court nobility by intermarrying with the imperial family. In addition, the Fujiwaras, as well as other aristocratic families, got control of much of the countryside by establishing great private estates. The Fujiwara family ruled Japan for about 300 years. During this time, the emperors lost all real power, though they still officially reigned.

### Important dates in Japan

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| <p><b>660 B.C.</b> According to legend, Jimmu Tenno became Japan's first emperor.</p> <p><b>A.D. 400's</b> New ideas and technology began arriving in Japan from China.</p> <p><b>646</b> The Taika Reform began. It set up a central government controlled by the emperor.</p> <p><b>858</b> The Fujiwara family gained control of the imperial court.</p> <p><b>1192</b> Yoritomo became the first shogun.</p> <p><b>1543</b> Portuguese sailors became the first Europeans to reach Japan.</p> <p><b>1603</b> The Tokugawa family began its more than 250-year rule of Japan.</p> <p><b>1630's</b> Japan cut its ties with the outside world.</p> <p><b>1833 and 1854</b> Commodore Matthew C. Perry of the United States visited Japan and opened two ports to U.S. trade.</p> <p><b>1867</b> The Tokugawa family was overthrown and the emperor regained his traditional powers.</p> <p><b>1868</b> Mutsuhito, also known as Emperor Meiji, announced Japan's intention to become a modern industrial nation.</p> | <p><b>1894-1895</b> Japan quickly won a war with China.</p> <p><b>1904-1905</b> Japan's defeat of Russia in the Russo-Japanese War established the country as a world power.</p> <p><b>1923</b> An earthquake destroyed much of Tokyo and Yokohama.</p> <p><b>1931</b> Japan seized the Chinese province of Manchuria.</p> <p><b>1937</b> Japan began a war with China. The fighting became part of World War II.</p> <p><b>1941</b> Japan attacked U.S. bases at Pearl Harbor in Hawaii.</p> <p><b>1945</b> The United States dropped atomic bombs on Hiroshima and Nagasaki. Japan surrendered to the Allies, and the Allied occupation of Japan began.</p> <p><b>1947</b> Japan's democratic Constitution went into effect.</p> <p><b>1951</b> Japan signed a general peace treaty and a security treaty with the United States.</p> <p><b>1952</b> The Allied occupation of Japan ended.</p> <p><b>1960</b> Japan signed the Treaty of Mutual Cooperation and Security with the United States.</p> <p><b>1980's</b> Opposition to Japan's international trade policies grew among a number of Japan's trading partners.</p> |
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**Rise of the shoguns.** During the 1000's, the Japanese imperial government continued to lose power over the countryside as the great estates became increasingly independent. The lords who controlled the estates were called *daimyo*. The daimyo hired bands of warriors to protect their lands and the peasants who worked them. These warriors became known as *samurai*. See **Samurai**.

Two of the most powerful bands of samurai were headed by the Taira family and the Minamoto family. These families fought for control of the imperial court in Kyoto. In 1160, the Taira family seized ruling power from the Fujiwaras. But Taira control ended in 1185, when the family was defeated in an Inland Sea naval battle by the Minamoto clan. The Minamoto family, headed by Yoritomo, had clearly become the strongest family in the country. Yoritomo set up his military headquarters in Kamakura.

Yoritomo claimed to be the protector of the emperor and ruled in his name. In 1192, the emperor gave Yoritomo the title *shogun* (general). Yoritomo's military government became known as the *shogunate*. Shogun rule lasted until 1867. Each shogun, or his advisers, controlled Japan—but always in the name of the emperor. See **Shogun**.

As time went on, the Minamoto shogunate found it increasingly difficult to keep the country's many daimyo and their samurai bands united. In 1336, a samurai leader named Takauji Ashikaga gained control of Kyoto. In 1338, he had the emperor name him shogun and established the shogunate in Kyoto. The Ashikaga family governed Japan for almost 235 years. But the family's control was weak, and the last 100 years of Ashikaga rule was marked by constant warfare among local samurai bands.

**Foreign relations.** Japan's early relations with other countries chiefly involved adopting features of their cultures. The Japanese felt safe from attack by foreign powers because of their country's isolated island position. In 1274, however, the Mongol conqueror Kublai Khan sent a fleet to conquer Japan. The invaders landed on Kyushu, but they withdrew when an approaching typhoon threatened their ships. In 1281, Kublai Khan again tried

to invade Japan. He sent a great fleet with a force of more than 140,000 men. The invasion failed when a typhoon destroyed the fleet. The Japanese attributed the defeat of the Mongols to this typhoon, which they called *kamikaze* (divine wind).

Europeans first heard of Japan from Marco Polo, a Venetian traveller of the late 1200's. He returned to Europe from China with tales he had been told of Japan, a place whose name meant *country where the sun rises*. Polo called the country *Zipangu*. He said it was a land of gold and riches. Later, explorers tried to reach this country. When Christopher Columbus sailed west from Europe in 1492, he hoped to land in Japan or the East Indies.

In 1543, Portuguese sailors became the first Europeans to reach Japan. In 1549, a Spanish priest, Saint Francis Xavier, came to Kagoshima in southern Kyushu. He began to preach the Roman Catholic religion. The Japanese welcomed the priest, and he converted many of them. Other missionaries from Spain and Portugal followed him, and traders came with them. During the early 1600's, traders arrived from the Netherlands and England.

**Tokugawa period.** A great warrior named Hideyoshi controlled Japan from 1585 until his death in 1598. He planned to build an empire that included China, but his armies got only as far as Korea. In 1592 and in 1597, Hideyoshi tried to conquer Korea but failed.

In 1603, Ieyasu, Hideyoshi's chief deputy in eastern Japan, became shogun. His family, the Tokugawas, ruled Japan for more than 250 years. Ieyasu was a brilliant statesman. He was determined to end the warfare among the local samurai bands. Ieyasu built a castle and established his shogunate in Edo (renamed Tokyo in 1868). Under his rule, Japan was divided into about 250 regions called *domains*, each headed by a daimyo who swore allegiance to the Tokugawa shogunate.

Ieyasu feared that the Christian missionaries might soon bring European armies with them to conquer Japan. Ieyasu and the rulers who followed him gradually put down the Christian movement. They ordered all missionaries to leave the country. They also forced all Japanese converts to give up their new faith. Those who re-

Detail of *The Burning of the Sanjo Palace* (late 1200's), an ink painting with colours on paper by an unknown Japanese artist. Museum of Fine Arts, Boston, Massachusetts, U.S.A.



**Rival families** fought for control of the Japanese government during the 1100's. Two of the country's most powerful families—the Taira and the Minamoto—met in battle in 1160, *left*. The Tairas won and ruled Japan until the Minamotos defeated them in a sea battle in 1185. In 1192, the emperor named Yoritomo, leader of the Minamoto family, *shogun* (general). For the next 675 years, shoguns were the actual rulers of Japan.

fused were persecuted or killed. By 1640, Christianity had been almost eliminated.

The Tokugawa government believed that contact with the outside world must end to keep order within the country. During the 1630's, it therefore cut ties with other nations. Japan became isolated from the rest of the world. The Japanese could not leave the country, and those who lived abroad were forbidden to return. Some foreign sailors who had been shipwrecked on Japan's shores were killed. All European traders except the Dutch had to leave. The government had less fear of the Dutch because they had not helped spread Christianity. The Dutch were permitted a small trading station on the tiny island Deshima in the harbour at Nagasaki. The Tokugawa government allowed one Dutch ship to come to the trading station each year.

**Renewed relations with the West.** During the early 1800's, the United States became increasingly concerned over Japan's mistreatment of American sailors who had been shipwrecked on the Japanese islands. In 1853, an American mission headed by Commodore Matthew C. Perry was sent to Japan. Perry's orders were to open diplomatic and trade relations with Japan and to ensure good treatment for shipwrecked Americans.

On July 8, 1853, Perry sailed four warships into the bay at Edo (Tokyo). He presented the U.S. demands to Japanese officials and said he would return for their reply. In February 1854, Perry reentered Edo Bay with more warships. A few weeks later, the Tokugawa government signed a treaty with the United States. The treaty provided for an American diplomat to reside in Japan and guaranteed better treatment for American sailors forced to land on the islands. It also granted the United States trading rights in two Japanese ports, Hakodate and Shimoda. Great Britain, the Netherlands, and Russia soon signed similar trade treaties with Japan. See Perry (Matthew Calbraith).

In 1858, Townsend Harris, the first U.S. diplomatic representative in Japan, arranged a more extensive trade treaty with the Japanese. That same year, Great Britain, France, the Netherlands, and Russia also signed general commercial treaties with the Japanese. Most of these

treaties granted the foreigners the right of *extraterritoriality*—that is, foreigners were allowed to live in Japan and be subject only to the laws of their own nations (see *Extraterritoriality*).

The treaties signed in the 1850's were called *unequal treaties*. They gave the foreign powers rights not granted to Japan in return. The enemies of the Tokugawa shogunate sharply criticized the government for having signed the treaties. Several important daimyo from western Japan plotted to overthrow the shogunate and restore the emperor to power. In 1867, troops of the daimyo forced the shogun to resign, and the emperor regained his traditional powers. On Jan. 3, 1868, the daimyo had Emperor Mutsuhito, then a teenager, officially announce the return of imperial rule.

**Meiji period.** In 1868, Japan's capital was moved from Kyoto to Edo, which was renamed Tokyo. Emperor Mutsuhito adopted as his title *Meiji*, meaning *enlightened rule*. The years in which he reigned, from 1867 to 1912, are known as the *Meiji period*. During the Meiji period, Japan developed into a modern industrial and military power. A group of counsellors assisted the emperor in running the Meiji government, especially during the early years of his reign. The emperor became the symbol of the new age.

In April 1868, the emperor issued the Imperial Charter Oath, which announced the government's intention to modernize Japan and to turn to the Western countries for new ideas and technology. The Meiji leaders set up a system of required education and built thousands of schoolhouses. They abolished the samurai and established a modern army and navy. The government instituted a telegraph network and began railway construction. It also set up modern systems of banking and taxation.

The Meiji leaders encouraged industrialization. The government established a number of experimental industrial projects to serve as models for new industries in Japan. American and European experts in many fields were hired to teach Western knowledge and methods to the Japanese people. By the 1920's, the economic system set up by the Meiji leaders was controlled by the

Detail of *The Opening of Japan* (mid-1920's?), a watercolour by Ogata Gassan



**An American mission** led by Commodore Matthew C. Perry arrived in Japan in 1853. The United States government sent Perry to open diplomatic and trade relations with the Japanese. The mission ended Japan's isolation from the rest of the world. In 1854, Japan signed a treaty opening two ports to U.S. trade.



*zaibatsu*, huge corporations owned by single families. These firms operated banks, factories, mines, trading companies, and many other businesses.

In 1882, Hirobumi Ito, one of the greatest of the Meiji leaders, was sent to Europe to study constitutional systems of government. In 1889, Japan's first Constitution was proclaimed. Under this document, the emperor became the head of state and the supreme commander of the army and navy. He appointed all important government ministers, who were, in turn, responsible to him. The Meiji Constitution also provided for a two-house parliament called the Diet.

**Imperialism.** During the 1890's, Japan succeeded in revising the unequal treaties of the 1850's. The Westerners gave up their privilege of extraterritoriality. About this same time, the Japanese government began a policy of imperialistic expansion. Japan wanted to gain control of Korean trade and industry. It also wanted to increase its influence in China.

In July 1894, Japan went to war with China over control of Korea, which had been under Chinese influence for many hundreds of years. Japan quickly defeated China. The Treaty of Shimonoseki, signed on April 17, 1895, gave Japan Taiwan and the Liaodong Peninsula, the southernmost tip of Manchuria. But within a week, France, Germany, and Russia forced Japan to return Liaodong to China. The Treaty of Shimonoseki also granted Korea independence, thus leaving the country open to Japanese influence. See *Chinese-Japanese wars*.

During the late 1800's, rivalry developed between Japan and Russia, especially over conflicting interests in Korea and Manchuria. England supported Japan in this rivalry and made an alliance with the Japanese in 1902. In 1904, Japan attacked a Russian fleet without warning

and then declared war on Russia. The Japanese forces soon won many battles on land and sea, but the war was extremely costly for both countries. President Theodore Roosevelt of the United States helped persuade Japan and Russia to end the war after more than a year of heavy fighting. A peace treaty was signed in Portsmouth, New Hampshire, U.S.A., in 1905.

The Treaty of Portsmouth gave Japan the Liaodong Peninsula, which Russia had leased from China. In addition, Russia recognized Japanese supremacy in Korea. Japan also received the southern half of Sakhalin Island and railway rights in southern Manchuria. The Russo-Japanese War established Japan as a world power. In 1910, Japan formally annexed Korea as a colony. See *Russo-Japanese War*.

World War I began in 1914. Japan, as an ally of England, at once declared war on Germany. The war gave Japan an opportunity to enlarge its empire. Japan seized the German holdings on the Shandong Peninsula in China. It also took the German-owned islands in the western Pacific—the Caroline, Mariana, and Marshall groups.

After World War I, Japan adopted a foreign policy that emphasized the development of trade, rather than the expansion of empire. The country strongly supported many measures for world peace. It became an original member of the League of Nations in 1920.

**Rise of militarism.** After the Meiji Constitution was proclaimed in 1889, political parties began to gain increasing importance in Japan. During the 1920's, the leader of the majority party in the Diet was commonly selected as prime minister.

The 1920's were a time of great difficulties for Japan. On Sept. 1, 1923, a terrible earthquake struck the Tokyo-Yokohama area. The quake, and the fires and tidal waves that followed it, killed about 143,000 people. A worldwide depression during the late 1920's seriously damaged the Japanese economy. About this same time, China began to strengthen its administration in Manchuria. Japan feared that it might lose its Manchurian rights gained in the Russo-Japanese War. The political parties that had only recently gained power could not deal with the problems troubling Japan. Officers in the Japanese army decided to take matters into their own hands.

In 1931, Japanese forces occupied all Manchuria and made it a puppet state called *Manchukuo*. They then extended their influence into Inner Mongolia and other parts of northern China. At home, nationalist groups threatened members of the civilian government who opposed the army's actions. On May 15, 1932, nationalists assassinated Prime Minister Tsuyoshi Inukai.

The League of Nations condemned Japan's actions in Manchuria. Japan withdrew from the League in 1933. On Feb. 26, 1936, an army revolt to establish a more nationalistic government failed. But three leading members of the civilian government were killed during the uprising. Japan's military leaders now held firm control of the government.

In 1937, a small fight between Japanese and Chinese troops stationed at the Marco Polo Bridge near Beijing (also spelled Peking), China, flared into open warfare between Japan and China. Japanese armies controlled



**Japanese expansion until 1919.** Japan expanded its territory as a result of three wars: the first Chinese-Japanese war (1894-1895), the Russo-Japanese War (1904-1905), and World War I (1914-1918). By 1919, Japan was a world power.



**Emperor Hirohito** reviewed part of Japan's armed forces in January 1938. In 1939, World War II broke out in Europe. Japanese armies occupied French Indochina in 1940 and 1941. Japanese aggression led to increased tension with the United States. On Dec. 7, 1941, Japanese bombers attacked U.S. military bases at Pearl Harbor in Hawaii.

most of eastern China by the end of 1938. Japanese militarists began to speak of establishing the Greater East Asia Co-Prosperity Sphere, which would unite all eastern Asia under Japanese control. Meanwhile, Japan had moved toward closer relations with Nazi Germany and Fascist Italy by signing anti-Communist pacts with the two countries.

**World War II** began in Europe in September 1939. In September 1940, Japan occupied the northern part of French Indochina. That same month, Japanese leaders signed an agreement with Germany and Italy, strengthening the alliance between the three countries. The expansion of Japanese power in Asia created increasing tension with the United States. In July 1941, Japanese troops entered southern Indochina. In response, the United States cut off exports to Japan. In the autumn of 1941, General Hideki Tojo became prime minister of Japan. The Japanese military leaders began planning for war with the United States.

Japan struck on Dec. 7, 1941. Japanese bombers attacked U.S. military bases at Pearl Harbor in Hawaii. They also bombed U.S. bases on Guam and Wake Island and in the Philippines. The Japanese quickly won dramatic victories in Southeast Asia and in the South Pacific. Japan achieved its greatest expansion in 1942. The country controlled an area from the Aleutian Islands south about 7,200 kilometres to the Solomon Islands and from Wake Island west about 7,600 kilometres to Burma.

The Japanese fleet suffered its first major setback in May 1942, when the United States confronted a Japanese force in the Battle of the Coral Sea. Neither side won a clear victory, but the U.S. victory in the Battle of Midway the following month helped turn the tide in favour of the United States. As Japanese defeats increased, political discontent in Japan grew. On July 18, 1944, Prime Minister Tojo's Cabinet fell.

Early in 1945, the battle for the Japanese homeland began. American bombers hit industrial targets, and warships pounded Japanese coastal cities. American submarines cut off the shipping of vital supplies to Japan. On August 6, the United States dropped the first atomic bomb used in warfare on the city of Hiroshima.

Two days later, the U.S.S.R. declared war on Japan and invaded Manchuria and Korea. The next day, on August 9, American fliers dropped a second and larger atomic bomb on Nagasaki.

Japanese leaders realized that their country had lost the war. On August 14, Japan agreed to surrender. At noon the next day, Emperor Hirohito announced to his people that Japan had agreed to end the war. On Sept. 2, 1945, the Japanese officially surrendered aboard the battleship U.S.S. *Missouri* in Tokyo Bay.

Japan lost all its territory on the mainland of Asia. It also lost all the islands it had governed in the Pacific—Iwo Jima, the Kurils, southern Sakhalin, the Ryukyus, and Taiwan. Japan kept only its four main islands and small islands nearby. Japan suffered millions of casualties. Ex-



**The Japanese Empire In 1942** reached its greatest extent. In 1931, Japan conquered Manchuria and then advanced into other parts of China and Southeast Asia. The map above shows the stages of Japanese expansion from 1931 to 1942.



cept for Kyoto, all the major Japanese cities had suffered from air attacks. Japan's economy was shattered.

**Allied military occupation** of Japan began in late August 1945. The chief goals of the occupation were to end Japanese militarism and to create a democratic government. Almost all the occupation forces were Americans. General Douglas MacArthur of the United States, as supreme commander for the Allies, administered Japan during the occupation.

Under the occupation, more than 5 million Japanese troops were disarmed and released from service. The Allies tried 25 top Japanese leaders for war crimes. Seven of the leaders, including former Prime Minister Tojo, were executed. The rest received prison sentences. About 200,000 Japanese were declared ineligible for political office in the future because they had supported militarism and nationalism.

In 1946, MacArthur and his advisers drafted a new Japanese Constitution, which the Japanese government quickly accepted. The document went into effect on May 3, 1947. The Constitution transferred all political power from the emperor to the Japanese people. It abolished the army and navy and stated that Japan would give up the use of war as a political weapon.

Economic reforms were also made during the Allied occupation. A huge land reform programme enabled farmers to own their land. The powerful *zaibatsu* firms were broken up and trade unions were established.

In 1949, MacArthur declared that the basic aims of the occupation had been achieved. He began to ease the controls over the Japanese people. On Sept. 8, 1951, Japan signed a peace treaty with 48 nations in San Francisco. That same day, a security treaty was signed between Japan and the United States. The treaty permitted the United States to have military bases in Japan. The peace treaty went into effect on April 28, 1952, and the Allied occupation officially ended that day.

In 1956, Japan finally signed a peace treaty with the Soviet Union, ending the state of war between them. (The Soviet Union had been formed under Russia's leadership in 1922, and it existed until 1991.) Japan gained United Nations membership later in 1956.

In 1968, the United States returned the Bonin Islands and Iwo Jima to Japan. The United States had returned the northern Ryukyus in 1953. In 1972, it returned the southern Ryukyus. Russia still claims and occupies the Kuril Islands. But Japan also claims the southernmost Kurils (see Kuril Islands).

**Postwar boom.** Japan made an extraordinary economic recovery after World War II ended. By the mid-1950's, its industrial production had returned to prewar levels. From 1960 to 1970, Japan's economic output increased at an average rate of 10 per cent a year.

There were several reasons for Japan's rapid economic recovery. After the war, Japan imported at relatively low cost all the modern technology that the West had to offer. The Japanese invested heavily in new plant and equipment. They focused their energies on the development of industries that produced goods for the expanding world market. Japan also had a hard-working, well-trained work force.

Many social changes also occurred in postwar Japan.

As the country became more prosperous, the people wanted improved consumer goods, such as cars, refrigerators, and colour television sets. In 1959, Crown Prince Akihito broke tradition by marrying a commoner, Michiko Shoda, the daughter of a wealthy industrialist. In 1971, Emperor Hirohito and Empress Nagako visited Western Europe. Their trip marked the first time a reigning emperor had ever left Japan.

In 1955, members of competing Japanese political groups united and formed the Liberal Democratic Party (LDP). This conservative party, backed by Japan's largest businesses, ran the country for nearly 40 years.

In 1960 rioting had greeted Japan's signing of a new Treaty of Mutual Security and Co-operation with the United States. Many Japanese opposed the treaty, which allowed the continued presence of U.S. military bases in Japan. In 1970, when the treaty came up for renewal, few Japanese opposed it.

In 1989, the LDP lost control of the Upper House of the Japanese Diet to the Socialist opposition following allegations that LDP politicians took bribes. In 1992, another financial scandal rocked the party, and in June 1993, the Liberal Democrats were defeated in a vote of no confidence over their failure to introduce promised reforms. A general election in July 1993 reduced the LDP to the role of opposition party, ending 38 consecutive years of LDP rule. A seven-party coalition took office, with Morihiro Hosokawa as Japan's new premier.

**Recent developments.** Up to about 1992, Japan could boast the highest rate of economic growth among the leading industrial nations. Japan's prosperity depends on the export of large quantities of manufactured products (including cars and electronic goods) in return for raw materials. In the 1980's, some of Japan's trading partners complained that its exports were harming their home industries and its import restrictions imposed unfair trade barriers on them. Japan limited its car exports to some countries and lifted some import restrictions. But many Western countries claimed this was not enough. The 1990's recession in the West hit Japanese exports. In 1992, Japan's domestic economy was hit by the effects of the same recession that had rocked other industrial nations. Its economic, as well as its political, future seemed uncertain. Japan's rapid industrial development has created widespread pollution and severe housing shortages in urban areas. In addition, the Japanese government faces growing pressure from its allies to increase defence spending and to take a more active part in regional defence arrangements. In September 1992, Japan sent troops to take part in a UN peacekeeping mission to Cambodia.

Emperor Hirohito died in January 1989. He had reigned since 1926. Akihito, Hirohito's son, became the new emperor.

In April 1994, Prime Minister Hosokawa resigned over allegations of financial misconduct. The former foreign secretary, Tsutomu Hata, became prime minister only to resign in June. A coalition of the Liberal Democratic Party, Social Democratic Party and a small centrist party formed the new government, with Tomiichi Murayama as prime minister. He became Japan's first socialist prime minister since 1948.

Related articles in *World Book* include:

### Biographies

Akihito	Mutsuhito
Hideyoshi	Tojo, Hideki
Hirohito	Yamamoto, Isoroku
Jimmu Tenno	Yamashita, Tomoyuki
Kitasato, Shibasaburo	Yukawa, Hideki
Kurosawa, Akira	

### Cities

Hiroshima	Osaka
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### History

Boxer Rebellion	Perry (Matthew Calbraith)
China (History)	Russo-Japanese War
Chinese-Japanese wars	Samurai
Colombo Plan	Shogun
Kamakura period	Taira
Kamikaze	World War I
MacArthur, Douglas	World War II
Manchuria	Yamato period
Mikado	

### Arts and recreation

Architecture (Japanese architecture; picture)	Japanese literature
Dancing (Oriental dancing; picture)	Japanese print
Doll (Doll festivals and customs; picture)	Judo
Drama (Japan; picture)	Kite
Film industry (Postwar Asian films)	Lacquer ware
Flower (Flower arranging; pictures)	Martial arts (Japanese martial arts)
Furniture (Japan)	Origami
	Painting (Japanese painting; pictures)
	Sculpture (Japan; picture)

### Other related articles

Ainu	Japanese language
Asia (Way of life in East Asia)	Jinrikisha
Bamboo	Library (Australia and the Far East)
Bonin Islands	Mount Fuji
Chrysanthemum	Navy (Navies in the two world wars)
Clothing (pictures)	Nisei
Far East	Okinawa
Flag (picture: Historical flags of the world)	Ryukyu Islands
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### Questions

How has family life in Japan changed since the end of World War II?

Why does Japan have many earthquakes each year?

How does the Japanese economy depend on foreign trade?

Who are the *burakumin* or *eta*? Why have they been the victims of discrimination?

What were the chief goals of the Allied occupation of Japan?

How do monsoons affect Japan's climate?

How did the Constitution of 1947 change Japan's government?

What percentage of Japan's land can be cultivated? How do Japanese farmers make their land as productive as possible?

Why did the Tokugawa shogunate cut Japan's ties with the outside world? How did the Tokugawa rulers restrict trade?

What were some reasons for Japan's rapid economic recovery after World War II?

**Japan, Sea of**, is an arm of the Pacific Ocean. It separates the islands of Japan from Korea and the eastern coast of Russia. The southern end of the sea is connected to the East China Sea by the Korea Strait. The northern end of the sea is connected to the Pacific Ocean by Tsugaru Strait, and to the Sea of Okhotsk by La Perouse Strait and Sakhalin Strait.

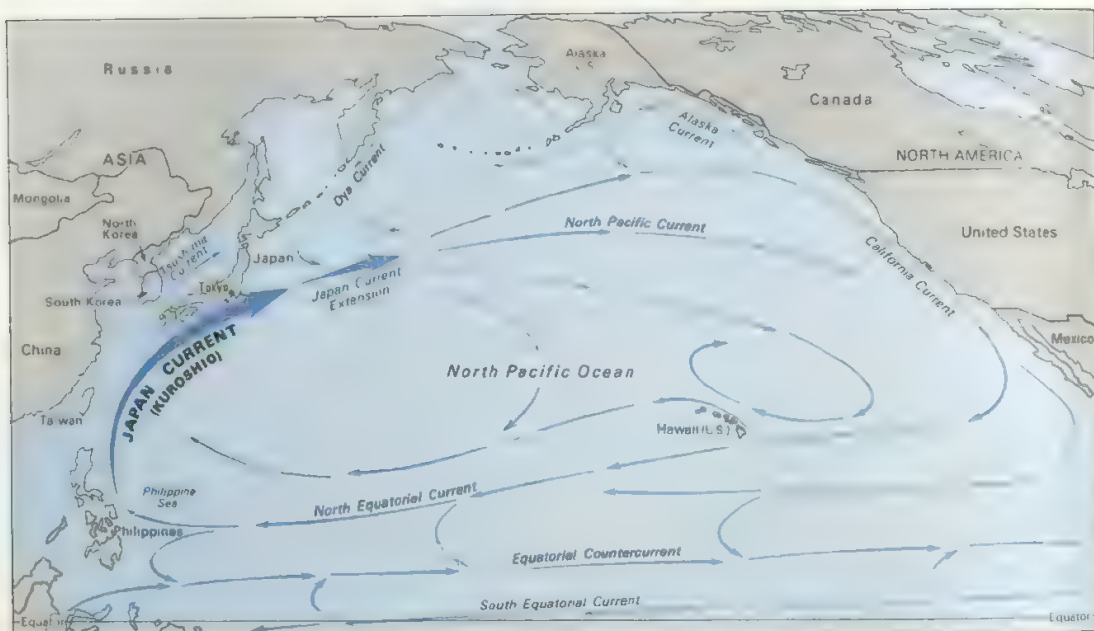
The Sea of Japan covers about 1,000,000 square kilometres. It averages 1,370 metres in depth. In some eastern sections, the sea is over 3,660 metres deep. For location, see Japan (terrain map).

**Japan clover.** See *Lespedeza*.

**Japan Current** is a warm, dark-coloured current in the Pacific Ocean. It is sometimes called *Kuroshio*, which is Japanese for *black current*. The Japan Current has a warming effect on the climate for most of its course. It begins in the Philippine Sea, where it separates from the North Equatorial Current. It passes the east coast of Taiwan and then heads northeast toward Japan. Near Japan, the current turns east and becomes the Japan Current Extension. It merges with the North Pacific Current farther east in the Pacific Ocean.

Surface temperatures along the Japan Current are lower than those along the Gulf Stream, a current in the Atlantic Ocean. For this reason, the Japan Current has a less warming effect on the climate of northwestern





The **Japan Current** flows north from the Philippine Sea to the coast of Japan. It then turns east and becomes the Japan Current Extension. The Japan Current Extension and the North Pacific Current merge in the Pacific Ocean.

North America than the Gulf Stream has on northern Europe's climate.

**Japanese beetle** is an insect that injures grasses, trees, crops, and garden plants.

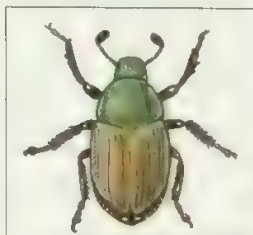
An adult Japanese beetle measures about 13 millimetres long. Its coppery-brown front wings are hard and meet in a line down the centre of the back. The rest of the body is metallic-green.

Adult Japanese beetles live for about two months. The females lay their eggs in the soil in midsummer. The young insects, called *grubs*, hatch in about two weeks. They have white comma-shaped bodies with brown heads and swollen tails. The grubs burrow into the soil until the following spring. They eat the roots of plants, especially those of grasses. In late May or early June, the grubs enter the *pupa* (inactive) stage and emerge as adults near the end of June. The adults feed on the leaves, flowers, or fruits of plants.

The beetle entered the United States about 1916. It probably was accidentally imported in the roots of nursery plants from Japan. The United States Department of Agriculture has released several types of parasites that attack Japanese beetle grubs. A bacterial disease, called *milky spore*, also can be used to kill the grubs. Adult beetles may be killed with insecticides or lured into traps by means of bait.

#### Scientific classification.

The Japanese beetle belongs to the scarab family, Scarabaeidae. It is *Popillia japonica*.



Japanese beetle

**Japanese chin** is a dainty, graceful toy dog. It stands between 25 and 28 centimetres tall at the shoulder. It weighs from 1.8 to 6 kilograms. It has a broad, rounded head, large, dark eyes, and a very short nose. Its coat is long and silky, with longer hair around its neck and on its tail and legs. The coat is white, with patches of black or red. The Japanese chin was brought to the Western world from Japan in the 1850's. The breed, which probably originated in China, was formerly called *Japanese spaniel*.

**Japanese language** is the native tongue of the people of Japan and the neighbouring Ryukyu and Bonin Is-



The Japanese chin

lands. It is also widely understood in former Japanese possessions such as Korea and Taiwan. Since 1868, the speech of the city of Tokyo has become the standard language of the Japanese people.

The rhythm of Japanese allows an even, metronome-like beat for each syllable. Differences in pitch are the distinctive features of words and phrases, much as differences in stress and emphasis are typical of English. Japanese dialects can be divided into three types, based on pitch-accent patterns. Standard Japanese illustrates the *majority* type. The *Kansai*, or *Western*, type is characteristic of western Honshu, most of Shikoku, and southern Kyushu. The *single-pattern* type is found in north-eastern Honshu and central Kyushu.

The structure of Japanese is similar to that of Korean. Both resemble languages of the Ural-Altaic type, which also includes Finnish and Turkish.

Japanese is spoken in different styles according to social situations. The *intimate* is correct in everyday conversation. The *polite* is used with cultivated company. The *honorific* style confers honour and respect when spoken, and is used for older people and superiors. There are also the *impersonal* style used in speeches and writing, and the *modern literary* style.

The language has both inflected and uninflected words. Each inflected word consists of a stem and one of a set of endings. Among these words are adjectives and verbs, including the linking verbs. The uninflected words include nouns, all the articles, and most prepositions and conjunctions.

Japanese vowels and consonants are generally softer than those of most European languages. All Japanese words end in vowels or the letter "n." The language has eight vowel sounds—*ah, eh, ee, o, oo, i, oi, and ay*. The word order of Japanese sentences is like that of English, except that verbs come at the end of sentences. There are no exact expressions for "yes" and "no." In order to answer the question "Do you like this?", a person would say "I like this" or "I do not like this."

The Japanese borrowed the Chinese system of writing, as well as many Chinese words. Some of these were simplified and codified into *syllabaries*, or tables of syllables in written symbols. These tables are called *kana*.

Two syllabaries are in use today. The first is a more common, rounded form known as *hiragana*. The second, the square-shaped *katakana*, is used much as italics are in English. Japanese is normally written with a combination of kana and Chinese characters (kanji) called *kanamajiri*. Sometimes kana of reduced size are added alongside a character to show its pronunciation. In 1948, the government began to reduce the number of characters to 1,850, and to simplify their shapes.

The Latin alphabet is also taught in Japanese schools, along with three systems of Romanized Japanese. The *Hepburn Romanization* writes consonants as in English and vowels as in Italian. The other two romanized types of Japanese, the *National* and the *Nippon-Type*, are both based on the structure of the Japanese language itself.

**Japanese literature** ranks as one of the world's great literatures. It reflects many characteristics of the Japanese people, such as their appreciation of tradition and their sensitivity to nature. The Japanese probably produced their first written literature during the A.D. 500's. But Japan long remained isolated from the rest of



**Japanese writing** is a highly skilled art. Writers use a brush, so they can make heavy and light lines. Characters are written starting at the top of the page and working down.

the world, and its written language was difficult to master. Therefore, Japanese literature remained almost unknown outside Japan until the 1900's.

**Beginnings.** The oldest existing works of Japanese literature are two histories, *The Record of Ancient Matters* (A.D. 712) and *The Chronicles of Japan* (720). These works chiefly glorify the imperial family, but they also include folk tales, legends, myths, and songs.

The earliest collection of Japanese poetry, the *Manyōshū*, also appeared during the 700's. It contains more than 4,500 poems by hundreds of poets. Japanese poems, partly because of the nature of the language itself, have subtle rhythms and no rhyme. They are written with a certain fixed number of syllables. The *Manyōshū* consists chiefly of 31-syllable poems called *tanka*, which deal with friendship, love, and nature. It also includes longer poems, many of which praise the imperial family.

**The Heian period (794-1185)** was the first great period of Japanese literature. During this period, most people who wrote and enjoyed literature were members of the nobility. The greatest writers were women.

The first work of Japanese fiction, *The Tale of the Bamboo Cutter*, written by an unknown author, dates from the early 900's. During the early 1000's, Murasaki Shikibu, a lady-in-waiting to a famous empress, wrote *The Tale of Genji* (see *Murasaki Shikibu*). This long novel is generally considered the greatest work of Japanese fiction. It far surpassed previous stories with its sophisticated style and accurate description of human emotions. Diaries and essays were also important literary forms during the Heian period. Sei Shonagon portrayed the customs and values of Heian court society in her volume of essays called *The Pillow Book*.

By the 900's, the vocabulary and themes of Japanese verse had become extremely limited, and technical skill was the outstanding feature of poetry. Buddhist ideas about human mortality brought a new seriousness to Japanese poetry in the 1100's. Poets also tried to reach beyond the limits of short individual poems by writing groups of poems with related themes and images.



**The medieval period (1185-1587).** The educated warrior classes joined the nobility in producing and reading literature during the medieval period. In the early 1300's, a trend toward historical fiction and an increasing mood of pessimism about human fate inspired the creation of *The Tale of the Heike*. This war story, whose author is unknown, describes the rise and violent fall of the Taira (Heike) family. Minstrels recited *The Tale of the Heike* throughout the Middle Ages, and it was the source of stories for plays in later centuries.

The most famous medieval Japanese essays include *An Account of My Hut* by Kamo no Chomei and *Essays in Idleness* by Yoshida Kenko. These works provide insight into traditional Japanese attitudes toward life and art. In poetry, the tanka remained the chief verse form throughout the medieval period. However, poets also composed *renga*, which were chains of interlocking poems written by several poets.

The oldest form of Japanese drama, the *no* drama, was first performed in the 1300's. It developed from performances of song and dance that had long been part of religious and folk rituals. In the late 1300's, an actor and playwright named Zeami Motokiyo shaped the *no* drama into the form in which it is still performed today. He combined dancing and chanting with literary themes and poetic language from the past.

**The Tokugawa period (1603-1867).** The most successful literary works of the Tokugawa period were those aimed at people of the new middle classes, who lived in the cities. Many prose works of the time dealt with scenes of urban Japan and with humorous or sexual subjects. In the late 1600's, Ihara Saikaku abandoned a successful career as a poet and became the most famous fiction writer of the period.

During the Tokugawa period, a new verse form called *haiku* challenged the popularity of the tanka. Haiku has 17 syllables and began as a comic style of verse that was simple to write. But in the late 1600's, Matsuo Basho changed haiku into a serious art form. His haiku, written according to strict rules, describe subjects in nature and contain a reference to a season of the year. These poems merely suggest ideas and feelings, and so the reader must use imagination to interpret them.

Two new types of drama, *kabuki* plays and puppet theatre, flourished during the 1600's. Kabuki plays are melodramatic and feature colourful costumes and lively acting. The puppet theatre of the early 1700's featured several dramatic masterpieces by Japan's greatest playwright, Chikamatsu Monzaemon. The poetic power of his scripts turned simple characters, such as shop workers and prostitutes, into tragic figures. See **Drama** (Japan).

**The modern period.** The influence of Western ideas has greatly changed Japanese literature since the end of the Tokugawa period. The major result of this influence has been the development of the modern novel. During the 1880's, a small group of writers educated in Western languages called for a break with older forms of literature. Such authors as Futabatei Shimei and Tsubouchi Shoyo thought the Japanese should write European-style novels as an intellectual counterpart to Japan's technological modernization. Futabatei soon produced such a novel, *Drifting Clouds* (1889).

Many people consider Natsume Soseki the greatest

Japanese novelist. As a novelist and literary critic of the early 1900's, he established the modern novel as a respected form of literature. Shiga Naoya wrote few works, but the continued popularity of his novel *A Dark Night's Passing* (1937) has ensured his fame. Two Japanese novelists have won the Nobel Prize for literature, Yasunari Kawabata in 1968 and Kenzaburo Oe in 1994. Other outstanding modern Japanese novelists include Tanizaki Jun'ichiro, Abe Kobo, and Yukio Mishima.

Western literature has also influenced Japanese poetry and drama of the 1900's. Some poets still write the traditional tanka and haiku, but longer poems and free verse now account for much Japanese poetry.

In spite of Western influences, however, tradition remains strong in Japan. In 1970, Yukio Mishima killed himself in the manner of a medieval warrior. He did so while proclaiming the same reverence for the imperial family that appears prominently in the earliest Japanese literature.

**Japanese print** is a type of Japanese illustration printed on paper from carved blocks of wood. The most famous Japanese prints were produced from the 1600's to the late 1800's. They are noted for their brilliant designs, bold colours, and technical quality.

Most Japanese prints portray scenes from everyday life or from the theatre and other popular forms of entertainment. The Japanese referred to these fleeting moments of life and passing amusements as the "floating world." They called the prints *ukiyo-e*, which means *pictures of the floating world*.

### Printing techniques

Japanese prints were designed by highly trained artists and produced by skilled artisans. The early prints were made in black and white, though the artists sometimes added other colours by hand. The Japanese began to produce colour prints in the mid-1700's.

Black and white prints were made from one block of wood. First, the artist drew a design in ink on paper. The drawing was glued onto a block of hardwood, usually cherry wood. A carver cut away the portions of the wood between the lines of the drawing, which left the design itself raised. A printer then applied a water-based ink to the raised surfaces of the wood block. A piece of absorbent paper was placed on the inked block. The printer rubbed the back of the paper with a smooth-surfaced pad, and the ink soaked into the paper. The printer then pulled the paper from the block, and the design appeared in print. The block could be used repeatedly to make hundreds of prints.

The production of colour prints required additional blocks of wood, one for each colour used. The carver cut each block so that the only areas left raised were those to be used for a certain colour. The printer then applied various coloured pastes to the blocks and placed the paper on each block in succession.

### History

Japanese prints originated in the early 1600's as illustrations in popular books. Many people became interested in the pictures themselves, and so publishers began to produce the illustrations separately from books. The publishers commissioned the artists and hired the carvers and printers.

Printmaking flourished in Japan during the Tokugawa period of the nation's history, from 1603 to 1867. During this period, a middle class arose and prospered in Japan's cities. The people of the middle class were the chief buyers of Japanese prints, which served as inexpensive substitutes for paintings.

Japan had little contact with other countries during the Tokugawa period. As a result, Japanese print artists were not influenced by Western art styles. These artists followed Japanese art styles that had developed over centuries.

**The master print artists.** One of the earliest known Japanese print artists was Moronobu, who lived during the 1600's. He created black and white prints of scenes from everyday life.

A technique that enabled artists to create colour prints was introduced in the mid-1700's. This technique involved carving wood blocks with guide marks so that printers could place paper in the same position on successive blocks. Harunobu, an artist of the mid-1700's, helped popularize colour prints. Harunobu's prints feature doll-like human figures and peaceful settings. They are especially noted for their beautiful colours and delicate lines.

Utamaro and Sharaku were among the greatest print artists of the late 1700's. Utamaro was known for his portraits of beautiful women. Sharaku specialized in portraits of *kabuki* actors. *Kabuki* is a form of Japanese drama dating from the 1600's. Sharaku's portraits have the exaggerated features typical of caricatures.

Landscape prints became popular in Japan during the 1800's. Hokusai and Hiroshige designed magnificent landscape prints. These artists created many series of prints of a particular scene in nature under a variety of weather conditions.

**The decline of printmaking.** During the mid-1800's, the Tokugawa government became weakened by economic problems and social upheavals. The *shogun* (military ruler) resigned in 1867, and Emperor Mutsuhito officially became ruler in 1868. The new government began to modernize Japan and introduced many Western inventions and traditions into the country.

The drive for modernization led to the decline of traditional Japanese printmaking. Many Japanese artists adopted Western-style painting, and they produced few high-quality prints. During the 1920's, however, interest in printmaking returned in Japan. Since then, Japanese woodcut artists have followed Western styles and techniques.

Japanese prints had a great influence on many Western artists of the late 1800's, including Edgar Degas of France and James A. M. Whistler of the United States. These artists sought alternatives to Western art styles and were fascinated by the designs, bold colours, and pictorial conventions of Japanese prints.

**Related articles in World Book include:**

Degas, Edgar	Hokusai
Drama (pictures: Japanese kabuki plays)	Japan (Arts)
Harunobu	Sharaku
Hiroshige	Utamaro
	Whistler, James A. M.

**Japanese spaniel.** See *Japanese chin*.

**Japanese spitz** is one of the family of spitz breeds of dog. The breed originally came from the Nordic Arctic regions. The Japanese spitz was introduced into Japan many centuries ago. It is a guard dog, and a companion dog, which remains little known outside Japan. It is a medium-sized dog, with a large head and a pointed muzzle. It has black eyes, a black nose, and small pointed ears. The tail, which is curled over the back, is



*Girl with Lantern on a Balcony at Night* (mid-1700's); the Metropolitan Museum of Art, New York City



*The Actor Bando Hikosaburo III and the Actor Iwai Hanshiro IV* (about 1794) by Sharaku; the Metropolitan Museum of Art, New York City



*Beauty with Fan and Parasol* (late 1700's) by Utamaro; the Metropolitan Museum of Art, New York City

A tranquil nighttime scene, above, by Harunobu shows a girl on a balcony silhouetted against the black sky. Harunobu was famous for the delicate, doll-like quality of the women in his prints.

Theatrical prints illustrated scenes from Japanese plays. Such prints were especially popular in the 1600's and 1700's. The one shown above emphasizes the colours and patterns of the costumes.

Beautiful women appear in many prints by Utamaro. In his portrait of the graceful woman shown above, Utamaro used the kimono, fan, and parasol to create bold contrasts of colour and pattern.



typical of the breed. The coat is thick and pure white. It stands from 30 to 40 centimetres high at the shoulder, and weighs about 10 kilograms.

**Jardine** was the name of a family of explorers of northern Queensland, Australia. The Scottish-born father, John Jardine, organized the expedition. Francis (1841-1919) and Alexander (1843-1920) set out from Carpentaria Downs on Oct. 11, 1864. They had 42 horses and about 250 cattle. Their objective was to reach Somerset at Cape York. For much of the way, they had to hack their path through dense jungle. They were attacked by hostile Aborigines and torn and stung by lawyer and calumnus vines. But they finally reached their destination five months later. Twenty-seven horses and a high proportion of the cattle perished during the journey.

In later years, Alexander Jardine became a road engineer. He surveyed and made many Queensland roads, including the road that runs from Brisbane to Gympie goldfield.

**Jargon.** See **Language** (table: Linguistic terms); **Slang.** **Jarrah** is among the world's most valuable hardwood timber trees. The name is a corruption of the Australian Aboriginal word *jarrale*. Jarrahs are tall, straight trees that generally grow to about 30 metres in height. They are from 1 to 1.8 metres in diameter and have a reddish-grey, fibrous bark. Their leaves are fairly bright green, broad, and pointed, with thickened edges. Jarrahs grow only in an area 30 to 50 kilometres wide in the Darling Range area of Western Australia. Their timber is used for foundations, sleepers, furniture, and flooring. Jarrah wood is easily worked and resistant to termites.

**Scientific classification.** The jarrah belongs to the myrtle family, Myrtaceae. It is *Eucalyptus marginata*.

**Jarrow** is an industrial town on the south bank of the River Tyne, England. It is located within the local government district of South Tyneside. Jarrow is the site of the monastery, now ruined, where the venerable Bede lived and died. In 1934, 200 unemployed people walked from Jarrow to London. They gained nationwide publicity about their lack of work.

See also **South Tyneside**; **Bede**.

**Jaruzelski, Wojciech** (1923- ), was the top leader of Poland from 1981 to 1989. He became Poland's leader when he was elected head of the country's Communist Party in 1981. As leader, Jaruzelski faced economic problems and protests against the Communist Party's political monopoly.

In December 1981, Jaruzelski established martial law in an effort to restore order. His administration established strict controls over the lives of the Polish people. It outlawed independent social organizations such as Solidarity, a free trade union led by Lech Walesa. Martial law in Poland was officially ended in 1983. But the government kept many controls over the people's freedom. In 1989, the government ended its ban on Solidarity and other organizations. It also allowed the freest



**Wojciech Jaruzelski**

elections to Parliament in Poland since the country became a Communist state in 1945.

In the 1989 elections, non-Communist candidates backed by Solidarity had the greatest success. The government was then restructured. In 1985, Jaruzelski had become president of the government—then a largely ceremonial post. Under the restructuring, the presidency became a much more powerful post. Jaruzelski was elected president under the new system, and he resigned his position as head of the Communist Party. A presidential election took place in 1990. Jaruzelski did not run for the office.

Jaruzelski was born in Kurów, near Lublin. In 1939, the Soviet Union invaded Poland. The Soviets deported Jaruzelski and many other Poles to the Soviet Union. After German troops invaded the Soviet Union in 1941, the Soviets recruited Jaruzelski to be trained as an officer for a Polish Communist army. Communists gained control of Poland in 1945. Jaruzelski joined the Polish Communist Party in 1947. In the military, he rose to the post of army chief of staff in 1965. Jaruzelski became a full member of the Communist Party's top policymaking body—the Politburo—in 1971. In the government, he was minister of defence from 1968 until 1983, and prime minister from 1981 until he became president in 1985.

**Jasmine** is the name of about 200 species of flowering shrubs that grow in mainly tropical and subtropical regions. Some jasmine shrubs are *deciduous* and lose their leaves each autumn. Others are *evergreen* and remain green throughout the year. The shrubs may climb or grow upright. The flowers are white, yellow, or pink and may be fragrant. Jasmynes first grew in warm regions of the Eastern Hemisphere. They are now often cultivated in gardens in many parts of the world.

The *common white jasmine*, or *jessamine*, is a vine-like plant with dark green leaves and white flowers. The *Spanish jasmine* has larger flowers tinged with red underneath. The *winter-flowering jasmine* has bright, waxy flowers that appear before the leaves. In France, botanists graft the Spanish type on the common white species. This practice results in a bushy plant with large, fragrant blossoms, which are used to make *oil of jasmine*. Oil from the common jasmine can also be used in perfumes. In China, people use jasmine to scent teas.



**Jasmines are woody plants with fragrant flowers.**

**Scientific classification.** Jasmines belong to the olive family, Oleaceae. Common jasmine is *Jasminum officinale*. Spanish jasmine is *J. officinale*, variety *grandiflorum*. Winter-flowering jasmine is *J. nudiflorum*.

**Jason** was a hero in Greek mythology who led a band of men called the Argonauts. Their capture of the Golden Fleece—the wool of a golden ram—ranks among the most exciting adventures in mythology.

Jason was the son of Aeson, the king of the city of Iolkos. Pelias, Aeson's brother, seized the throne and forced the infant Jason and his mother to flee the city. After Jason grew up, he returned to Iolkos to claim his father's throne. To get rid of Jason, Pelias persuaded him to organize an expedition to capture the Golden Fleece from the distant land of Colchis.

For the Golden Fleece expedition, Jason recruited about 50 heroes who became known as the Argonauts after their ship, the *Argo*. After many dangerous adventures, the Argonauts reached Colchis. Medea, the daughter of the king of Colchis, fell in love with Jason. With the help of Medea's magic powers, Jason captured the Golden Fleece and returned to Iolkos.

See also **Argonauts; Golden Fleece; Medea**.

**Jasper** is the name of a dark red variety of *chalcedony*. Chalcedony is the most common member of a group of quartz minerals that are *cryptocrystalline* (composed of very small fibres or rods). The red coloration of jasper usually indicates the presence of iron oxide.

Jasper is harder than a knife, and it can scratch glass. It takes a high polish and is used for mantels, pillars, and other decorative interior finishings. Fine grades of jasper are polished into gems. The most beautiful varieties come from Siberia, Greece, India, Turkey, and Poland.

Prehistoric people made arrowheads and tools from jasper and other related minerals. Jasper is mentioned in the Bible as a part of the breastplate of the Jewish High Priest (Exodus 39: 13). Ancient Greeks and Romans believed it could heal many illnesses and draw the poison from snakebites.

See also **Quartz; Gem** (picture).

**Jaspers, Karl** (1883-1969), was a leading German existentialist philosopher. He held that philosophy is not a set of doctrines, but an activity through which individuals can become aware of the nature of their own existence. Jaspers wrote many books about the great philosophers of the past. However, he was not primarily interested in the philosophers' conclusions, because he held that in philosophy all content and all conclusions are unimportant. Jaspers urged the study of other philosophers as a way to disturb and stimulate us so profoundly that we would be compelled to engage in the activity of philosophizing. See **Existentialism**.

Jaspers said that people constantly try to transcend their limitations through science, religion, and philosophy, but they experience failure or "shipwreck." Jaspers believed that people learn most about themselves in "limit situations" such as death, guilt, and failure. These situations reveal to people what their limitations are. The most complete statement of Jaspers' views appears in *Philosophy* (1932). He presented less complicated versions in *The Perennial Scope of Philosophy* (1948) and *The Way to Wisdom* (1949).

Jaspers was born in Oldenburg in Lower Saxony. He began teaching psychiatry at the University of Heidel-

berg in 1913, and became professor of philosophy there in 1921. In 1948, he became professor of philosophy at the University of Basel, in Switzerland.

**Jassin, H. B.** (1917- ), an Indonesian essay writer and literary critic, has been called "the custodian of modern Indonesian literature." He is best known for his vast collection of materials on Indonesian literature. They are in a public institute called "The H. B. Jassin Centre for Documentation on Literature" in Jakarta.

Hans Bague Jassin was born in Gorontalo, in northern Sulawesi, Indonesia. After schooling in Balikpapan and Medan, he went back to Gorontalo. He worked as a volunteer in the office of the Dutch *assistant resident* (local governor). He later went to Jakarta and edited Malay books at the *Balai Pustaka*, a government literary institute. From 1953, Jassin taught in the faculty of literature at the University of Indonesia. There he encouraged young writers.

Jassin's professional work included serving on the editorial boards of many literary journals in Indonesia. He also wrote many books and articles on Indonesian literature. In addition, he translated foreign works into Indonesian. These translations include the novel *Max Havelaar*, by the Dutch author Eduard Douwes Dekker, who published his book under the pen name Multatuli in 1860. The translation was published in 1972.

**Jaundice** is a yellowish discoloration of the skin, the tissues, and the whites of the eyes. It results from an increased amount of *bilirubin*, a reddish-yellow pigment, in the blood. Bilirubin is formed by the breakdown of *haemoglobin*, a pigment in red blood cells. The liver removes bilirubin from the blood stream and discharges it in the bile. Thus, jaundice results from either excessive production of bilirubin or reduced discharge of bile. Jaundice is not a disease but a symptom of various diseases. Jaundice in dogs, sheep, and other animals is sometimes called *yellow*.

*Haemolytic jaundice* results from an increased breakdown of red blood cells, which causes a greater concentration of bilirubin in the blood. *Hepatocellular jaundice* occurs when the liver is diseased, as in hepatitis, so that it cannot secrete enough bile. Bilirubin collects in the body, causing jaundice. *Obstructive jaundice* is caused by the blocking of the bile ducts. Gallstones may cause such a blockage.

Many babies are born with *physiologic jaundice*, which occurs if the body cannot process all the bilirubin it produces. In most cases, this condition disappears within two weeks after birth.

See also **Bile; Hepatitis; Liver** (Diseases of the liver); **Yellow fever**.

**Java** is the most heavily populated and important island of Indonesia. Although it occupies less than one-

### Facts in brief about Java

**Population:** 107,513,797.

**Area:** 132,187 km<sup>2</sup>

**Elevation:** Highest—Semeru 3,676 m.

**Largest cities:** Jakarta, Surabaya, Yogyakarta.

**Chief products:** Agriculture—cacao, cloves, coconuts, maize, peanuts, rice, rubber, soybeans, sugar, tea, tobacco. Fishing—many types of fish. Forestry—rattan, teak, timber, turpentine. Manufacturing—aircraft, cement, steel, textiles. Mining—gold, natural gas, petroleum, silver.



fifteenth of the land area of Indonesia, Java has influenced the history and culture of the whole region. The civilization of the region reached its highest point in Hindu times between the A.D. 900's and the 1400's, and its cultural influence affected the other islands. Since the Dutch colonial period started in the 1600's, Java has been the centre of political power for Indonesia.

The Indonesians distinguish between *Pulau Jawa* (the Island of Java) and *Tanah Jawa* (the Land of Java). *Tanah Jawa* refers to the part of Java inhabited by Javanese, corresponding roughly to Central and East Java.

### Land

Java lies between Sumatra to the west and Bali to the east. To the north is the Java Sea. To the south is the Indian Ocean, which Indonesians call the *Indonesian Ocean*. The greatest distance from north to south is about 200 kilometres, and from east to west it is over 1,000 kilometres.

The island of Java has five administrative units: (1) The Special Territory of *Jakarta Raya* (see **Jakarta**), (2) *Jawa Barat* (West Java), (3) *Jawa Tengah* (Central Java), (4) The Special Territory of *Yogyakarta* (see **Yogyakarta**), and (5) *Jawa Timur* (East Java).

A chain of volcanic mountains runs along the island from west to east. These mountains are part of a fold in the earth's crust which extends from the Southeast Asian mainland, through Sumatra and Java to the Lesser Sunda Islands. Java itself has 112 peaks. The volcanic soils of the eastern part of the island are extremely fertile, and this area supports a large population.

Tangkuban Pahu in West Java is a live volcano. It attracts many tourists. A similar mountain in the Sunda Straits, Krakatau, is famous for its eruption of 1883. The whole northern portion and half the peak were blown away. The explosion caused a loud bang heard up to 700 kilometres away. The resulting sea waves caused the deaths of more than 36,000 Indonesians in the low-lying areas west and south of Jakarta. See **Krakatau**.

### People

About three-fifths of the people of Indonesia live in Java. The most densely populated region is Jakarta Raya, where there is an average of about 12,000 people per square kilometre.

The inhabitants of West Java are mostly Sundanese. They speak their own language, which is quite distinct from Javanese. Central Java is the cultural homeland of Javanese people, who speak the Javanese language.



**Locally caught fish** are food for many Javanese people. The market, *above*, is in the coastal town of Labuhan, West Java.

About 96 per cent of them are Muslims, although Islam is not as important here as in other parts of Indonesia. The cities of Solo (or Surakarta) and Yogyakarta are the main centres of traditional culture.

The making of *batik* (a kind of dyed cloth) is highly developed in Java (see **Batik**). Important theatrical forms are *wayang kulit* (shadow play) and the *wayang orang* (drama with human actors). See **Wayang**.

### Economy

The most important agricultural crop is rice. It is planted on *paddies* (irrigated rice fields) called *sawah* and non-irrigated fields called *ladang*. Among other major crops are maize, peanuts, and soybeans. Crops grown on plantations include cacao, cloves, coconuts, rubber, and tea. The main farm animals are buffaloes, cattle, goats, horses, pigs, and sheep.

Industry is growing steadily. There are steel plants, cement works, and an aircraft factory. Textiles are also a major manufactured product.

### Things to see and do

Favourite tourist sites in West Java include the Puncak Pass area, Cipanas Hot Springs, the botanical garden at



**Gunung Semeru** is 3,676 metres high. It is the highest mountain in Java and an active volcano. The local people keep a careful watch on it because it has erupted twice in recent times.

**Rice** is the most important crop and food in Java. Most of the rice is grown in irrigated paddies. The rice villages, right, on the north coast of Java, are surrounded by their paddies. Java produces over 25 million tons of rice a year and more than 60 per cent of Indonesia's rice harvest.



Cibodas, the wildlife park at Ujung Kulon, Krakatoa Island, and many beaches. The botanical gardens at Bogor cover about 300 hectares and have over 10,000 plant species. There is also a fine library. In Bandung, the main shopping centre is Jalan Braga. Travellers can reach most areas easily by road from Jakarta.

In Central Java, major attractions include the temples at Borobudur and Prambanan, the Mangkunegaran Museum in Surakarta, and the Dieng Plateau, which has ruins of old Hindu temples. The Pangeran Diponegoro Memorial Museum attracts many visitors (see **Diponegoro**, **Pangeran**). The General Sudirman Memorial Museum is also important.

The main tourist sites in East Java are the beaches at Ngliyep and Pasir Putih, the Wundit Lake, Surabaya Zoo, Baluran Game Park, and the MPU Tantular, Trinil, and Brawijaya museums.

## History

**Early kingdoms.** The Javanese, like other Indonesian peoples, probably came from the Asian mainland at least one million years ago. Archaeologists have found fossil remains of a prehistoric human being on Java, which they called "Java man" (see **Java man**). The eastern two thirds of the island (together with the smaller island of Bali), are very fertile, because of the volcanic soil, which is different from other parts of Indonesia. Being more *alkaline* (nonacidic) it is ideal for wet rice cultivation. This fertile land supported large areas of dense population in inland Java, similar to the great "rice bowls" of mainland Indo-China. The Javanese were able to produce so much food that, when they had fed all the farmers and their families, there was still a surplus to support court retainers, priests, and soldiers. As a result, large land-based kingdoms came into being.

Java's position near the main sea routes from India to the Spice Islands and China made it open to influence from other countries and cultures. During the first 100 years of the Christian era, Indian influence began to reach the Indonesian Archipelago, including Java. The oldest inscriptions on the island are written in Sanskrit

and date from about A.D. 450. They tell of the oldest Indian-influenced kingdom, called Taruma, which was in the region of present day Jakarta. In the following centuries, Indian culture, bringing with it Hinduism and Buddhism, took root and developed particularly in the fertile areas of central and eastern Java, and in Bali. The first powerful Hindu-Javanese kingdoms arose in central Java, producing great monuments such as the Borobudur Buddhist temple and the Prambanan Hindu temple. In Sumatra and Kalimantan, and the outer provinces, such public buildings and palaces were usually of wood, and do not compare with the stone monuments of Java.

Later inscriptions, written in Old Javanese on copper plates or on stone, tell us about the later kingdoms of central Java. In the mid-700's, Sanjaya ruled the kingdom of Mataram. In the early 900's, a ruler in central Java named Balitung also claimed sovereignty in East Java. Within a few years the rulers had abandoned central Java and moved to east Java, probably because the east gave them better access to the sea and trade. The empire of Majapahit grew up in east Java in about 1294, and became a sea power dominating the trade in spices.

**The spread of Islam.** Tombstones near Majapahit record the presence of Muslim settlers in east Java from A.D. 1376 onwards. During the 1400's, Islam began to spread through Java, with preachers coming from Melaka on the Malay Peninsula. The religion followed in the footsteps of the traders, reaching ports on the northern coast such as Demak, Tuban, and Surabaya (see **Wali Sanga**). Gradually, the Hindu kingdoms yielded to Islam and the survivors withdrew to Bali, leaving Muslim sultans ruling in Java. In 1513, a Muslim prince from Jepara in Java attacked the Portuguese in Melaka, and later became ruler of Demak. One of the greatest of the Muslim rulers was Sultan Agung, who reigned from 1613 to 1646 (see **Agung**, **Sultan**).

In east and central Java, the Islamic culture showed the influence of the Hindu-Buddhist past. The old mosques had tiers of square roofs instead of domes, with no separate minarets. In the formerly Hindu areas,





**Shiva** was the Hindu deity worshipped in eastern Java until the 1400s. The statue, *above*, is at Candi Singosari.

Javanese Muslims have traditionally been less strict in their observance of Islam than those of other parts of Indonesia.

**The arrival of the Dutch.** Bantam in west Java became a Muslim state, probably after the conversion of eastern Java. Its position on the coast near the Strait of Sunda and the Strait of Malacca was ideal for trade, and it grew to become the most famous port and trading centre in the whole archipelago. The first Dutch trading vessels arrived in Bantam in 1596. In 1619, the Dutch East India Company established its main trading station at a nearby port, the site of the present-day Jakarta. The Dutch conquered Bantam and, during the next 200 years, gained political control of the local states throughout most of Java. In some cases, the local rulers came under direct Dutch control. In others, the Dutch deposed the rulers and appointed local governors or regents. In 1755, they divided the state of Mataram into two, each under a ruler who acknowledged their overlordship. This measure formed the provinces of Surakarta and Yogyakarta. The Dutch East India Company gradually changed into a land power in Java. Local wars forced the Dutch to spend much money on maintaining strong garrisons of soldiers on the islands.

**Conflict with the Chinese.** There had been Chinese settlers in Java for hundreds of years. They lived mainly in the big cities and were vital to Java's trade. The Dutch allowed them their own areas in the towns, and appointed headmen, called "captains of Chinese" or "lieutenants of Chinese". The Chinese were content to be left to themselves. Gradually they spread from the port cities over eastern Java, and even into the highlands.

At first, Chinese settlers in Java seldom came into conflict with the Dutch. But as the numbers of Chinese grew in Batavia (later Jakarta), the Dutch became alarmed. In 1740, the Dutch government ordered the arrest and detention of all Chinese who had no proper means of support. A rumour spread amongst the Chi-

nese that the Dutch would put them on ships for Ceylon (Sri Lanka), but would throw them into the sea as soon as they were out of sight of Java. The Chinese in Batavia formed armed bands. The local Dutch population feared that the Chinese were planning an armed uprising. The Dutch and Javanese began killing Chinese throughout the Batavia area, burning down their houses and plundering their goods. About 10,000 Chinese probably died in this massacre. Many escaped to other parts of Java, where some found sympathetic Javanese who supported them in fighting the Dutch. Before long, resistance to the Dutch was spreading through Java. The Dutch employed mercenary soldiers from other parts of Indonesia, who restored order within a few years.

The Dutch ruled Java for the next 200 years, except for one short period of British control. In 1811, during the Napoleonic Wars, the British captured Java and ruled it for five years before handing it back to the Dutch.

The Java War (1825-1830) was a major revolt by the Javanese against Dutch rule. In 1830, the Dutch colonial government introduced the notorious "cultivation system" to help meet the costs of the war. The system forced the Javanese to produce the crops which the Dutch needed, and lasted until 1860. (See Diponegoro, Pangeran; Van den Bosch, Johannes).

**The rise of nationalism.** In the 1900s, Java became the main base for the growing Indonesian nationalist movement. One of the earliest national figures was a Javanese noblewoman, Kartini (see Kartini, Raden Ajeng). In 1908, Wahidin Sudirohusodo, a Javanese doc-



**Javanese dancers** perform traditional dramas called *wayang orang*. The *badoyo*, *above*, is a temple dance at Prambanan.



Tea is an important commercial crop in Java. The teapickers, above, are working on a plantation at Puncak.



Petroleum is Java's main mineral product. The oil refinery at Cilacap, above, in Central Java, is one of the most modern.

for founded Budi Utomo, the first nationalist organization, and in 1912 Javanese traders formed the Muslim society called *Sarekat Islam* (Islamic Union). Most other nationalist groups, such as the PNI (Indonesian Nationalist Party), were Java-based. Throughout the 1920's, 1930's, and 1940's, the main driving force behind the Indonesian struggle for independence came from Java.

**Independence.** Towards the end of 1941, Japanese forces invaded Southeast Asia. In February 1942, the Japanese destroyed the Dutch East Indian fleet in the Battle of the Java Sea, and shortly afterwards occupied Java. The Japanese recognized Sukarno as the most influential Indonesian nationalist leader. After the Japanese surrender in August 1945, Sukarno proclaimed the independence of Indonesia in Jakarta.

The war for independence (1945-1949) between the Indonesians and the Dutch took place throughout Indonesia, but the centre of the struggle was always Java. The island contained the Indonesian government and the main Dutch headquarters. The Dutch transferred sovereignty to Indonesia on Dec. 27, 1949, but insisted that Indonesia become a federal republic. Their aim was to prevent the Javanese majority from dominating the other regions. In August 1950, the independent Indonesian government changed the Constitution and concentrated central power in Java. The country became the unitary state of the Republic of Indonesia.

**Javanese domination.** The people in Sumatra and other outer islands, who produced most of the Republic's exported products, became unhappy that the Javanese took most of the profits. The government's policy of transferring Javanese to live in other, less densely populated islands also produced tensions between the Javanese and the others. During the 1950's there were occasional attempts by the outer islands to challenge Java's supremacy. One example was the "PRRI" rebellion in 1958, an attempt by Sumatrans to replace the Javanese-dominated Indonesian government. The republic-

can army suppressed the rebellion, and Sukarno sent a Javanese regiment to the area to maintain the peace.

**Related articles in *World Book* include:**

Bandung	Jakarta	Surabaya
Borobudur	Majapahit	Yogyakarta
Indonesia	Semarang	

**Java man** was a type of prehistoric human being who lived from about 1 million to 500,000 years ago. This creature belonged to an early human species called *Homo erectus* (erect human being). All the evidence of Java man's existence comes from fossils found in ancient stream and volcanic deposits on the island of Java. The fossils were first discovered in 1891 by Eugène Dubois, a Dutch doctor.

The fossils of Java man show that these people had a large face with a low, sloping forehead and heavy ridges above the eyes. They had a thick skull and a massive jaw with huge teeth. Their brain was smaller than that of more modern types of human beings. Java man probably stood slightly more than 150 centimetres tall.

**Javed Miandad** (1957- ), a right-handed Pakistani batsman, scored more test runs than any other Pakistani cricketer. He became one of the highest scoring batsmen in the history of cricket. Javed captained Pakistan several times in the 1980's and 1990's. He became known for his brilliant, sometimes unorthodox stroke play. He was also a useful spin bowler. He began his first-class cricket career at the age of 16. In Pakistan, he played for Karachi Whites, Sind, and Habib Bank, and in the United Kingdom for Sussex and Glamorgan. Javed's test career began in 1976. He scored 163 against New Zealand in his first test match. Before he was 20 he had made a double century in test cricket. In 1983, in a test match against India, he shared in a world record stand of 451 for the third wicket with Mudassar Nazar. Javed Miandad Khan was born in Karachi.

**Javelin** is a light, slender spear that is thrown for distance in athletics meetings. In ancient times, warriors



### Throwing a javelin

A thrower grasps the javelin by a cord grip and sprints down a runway. The javelin must be thrown over the shoulder or upper part of the throwing arm before the person reaches a restraining line. The javelin must land in a marked sector with its point striking the ground first.



used the javelin as a weapon of war. Ancient hunters also used it.

The javelin used in athletics meetings is made of metal with a metal tip. The length of a men's javelin may be from 2.6 to 2.7 metres. Women use a javelin that is 2.2 to 2.3 metres long. The men's javelin must weigh at least 800 grams, and the women's javelin must weigh at least 600 grams.

A javelin thrower grasps the shaft on a cord grip, and runs with it down a runway to gather momentum. The thrower runs about 30 metres and then hurls the javelin overhand from behind a line. It must fall within a marked sector with its point striking the ground first.

For javelin championship figures, see the tables with **Athletics and Olympic Games**. See also **Spear**, **Javelina**. See **Peccary**.

**Jaw**. See **Face**.

**Jay** is a woodland bird of the crow family. There are about 35 species. Jays are bold inquisitive birds with *raucous* (harsh) calls. They tend to have patches of brightly coloured or strongly marked feathers. Jays build large nests made of twigs and lined with hair.

The common jay of Europe and Asia has a blue wing

patch and streaked crest, and is about 35 centimetres long. It is found especially in and around oak woods. It feeds mainly on acorns in the autumn. It buries a large amount of acorns in food stores which it unearths and uses for food during the winter. It also eats small mammals, birds' eggs, young birds, and small invertebrate animals such as spiders and worms.

The Siberian jay lives in dense coniferous forest in Finland and Russia. It makes winter food stores of pine and spruce seeds. The Siberian jay is smaller and less brightly marked than the common jay of Europe and Asia, and has rust-red wing patches, rump, and outer tail feathers.

North America has several species of jay including the *blue jay*, a familiar bird of parks and gardens. The *grey jay* lives in the northern coniferous forest of North America. The *green jay* is a colourful species from Central and South America.

**Scientific classification.** Jays belong to the crow family, Corvidae. The Eurasian jay is *Garrulus glandarius*, the Siberian jay is *Perisoreus infaustus*, the blue jay is *Cyanocitta cristata*, the grey jay is *P. canadensis*, and the green jay is *Cyanocorax yncas*.

See also **Blue jay**; **Crow**.



**Jays** are related to ravens and crows but usually have more colourful feathers. The common jay, left, lives in Europe and Asia; the green jay, centre, is from tropical Central and South America; and the Siberian jay, right, lives in northern Asia.



The Count Basie Band



The Modern Jazz Quartet



Pianist Marcus Roberts

Jazz is a popular kind of music that originated in America. It may be performed by a large group called a big band, *top*; or a small group called a combo, *above left*; or a soloist, *above right*.

## Jazz

**Jazz** is a kind of music that has often been called the only art form to originate in the United States. The history of jazz began in the late 1800's. The music grew from a combination of influences, including black American music, African rhythms, American band traditions and instruments, and European harmonies and forms. Much of the best jazz is still written and performed in the United States. But musicians from many other countries are making major contributions to jazz. Jazz was widely appreciated as an important art form in Europe before it gained such recognition in the United States.

One of the key elements of jazz is *improvisation*—the ability to create new music spontaneously. This skill is the distinguishing characteristic of the genuine jazz musician. Improvisation raises the role of the soloist from just a performer and reproducer of others' ideas to a composer as well. And it gives jazz a fresh excitement at each performance.

Another important element of jazz is *syncopation*. To syncopate their music, jazz musicians take patterns that are even and regular and break them up, make them uneven, and put accents in unexpected places.

The earliest jazz was performed by black Americans

who had little or no training in Western music. These musicians drew on a strong musical culture from black life. As jazz grew in popularity, its sound was influenced by musicians with formal training and classical backgrounds. During its history, jazz has absorbed influences from the folk and classical music of Africa, Asia, and other parts of the world. The development of instruments with new and different characteristics has also influenced the sound of jazz.

### The sound of jazz

Jazz may be performed by a single musician, by a small group of musicians called a *combo*, or by a *big band* of 10 or more pieces. A combo is divided into two sections: a solo front line of melody instruments and a back line of accompanying instruments called a *rhythm section*. The typical front line consists of one to five brass and reed instruments. The rhythm section usually consists of piano, bass, drums, and sometimes an acoustic or electric guitar. The front-line instruments perform most of the solos. These instruments may also play together as ensembles. A big band consists of reed, brass, and rhythm sections.



The rhythm section in a combo or big band maintains the steady beat and decorates the rhythm with syncopated patterns. It also provides the formal structure to support solo improvisations. The drums keep the beat steady and add interesting rhythm patterns and syncopations. The piano—or sometimes a guitar—plays the chords or harmonies of the composition. The bass outlines the harmonies by sounding the bottom notes of the chords, on the strong beats of each bar. Any of the rhythm instruments, especially the piano, may also play solo during a performance.

**The brass.** The principal brass instruments of jazz are the trumpet, the cornet, and the slide trombone. But the French horn, the valve trombone, the baritone horn, the flügelhorn, and even electronic trumpets have been used in jazz performances.

The cornet and trumpet are melody instruments of identical range. But the cornet is more mellow and the trumpet more brassy. Most jazz performers today use the trumpet. The slide trombone blends with the trumpet. The typical brass section of a big band consists of four or five trumpets and three trombones.

Jazz trumpeters and trombonists frequently use objects called *mutes* to alter or vary the sound of their instrument. The player plugs the mute into the *bell* (flared end) of the instrument or holds it close to the bell.

**The reeds.** The clarinet and saxophone are the principal reed instruments of jazz. The flute, though technically a woodwind, is often classified as a reed in jazz. It is used especially as a solo instrument.

Both the clarinet and saxophone families range from soprano to bass. Only the soprano clarinet has been universally used in jazz. In early jazz, it was an equal member of the front line with the trumpet or cornet and the trombone. The clarinet eventually gave way to the saxophone, which is capable of much greater volume. Four members of the saxophone family—the soprano, alto, tenor, and baritone saxophones—are regularly employed in jazz. A typical reed section in a big band is made up of one or two alto saxophones, two tenors, and a baritone. Musicians often “double” by playing two or more reed instruments, such as an alto saxophone and a tenor saxophone, during a performance.

**Drums** were familiar to black Americans dating back to the days of slavery. These early percussion instruments played a vital role in the development of jazz.

As jazz grew, the drum set evolved until one drummer could play more than one percussion instrument at the same time. The invention of a foot-operated bass-drum pedal and pedal-operated cymbals freed the drummer’s hands to play other percussion instruments, such as snare drums, tom-toms, cowbells, and wood blocks. Another important invention was a wire brush, used in place of a drumstick or mallet to produce a more delicate sound on drums and cymbals. Today, a jazz drummer may use electronic percussion instruments that create an almost infinite variety of sounds and reproduce them accurately at virtually any volume.

**The piano.** Since the earliest days of jazz, the piano has served both as a solo instrument and as an ensemble instrument that performs as part of the rhythm section. Today, other keyboard instruments, including electronic organs, electric pianos, and synthesizers controlled by a keyboard, may substitute for pianos.

**The guitar,** like the piano, is capable of playing both chords and melodies. In the early days of jazz, these two instruments, along with the banjo, were often substituted for one another. Later, however, the guitar and banjo were most often used in the rhythm section in addition to the piano. The banjo eventually disappeared from almost all later forms of jazz. Jazz musicians have used the acoustic guitar in ensembles and as a solo instrument since jazz’s earliest days. The electric guitar emerged in jazz in the late 1930’s to add sustained notes, greater volume, and new sounds and effects to jazz.

**The bass** plays the roots of the harmonies. The musician normally plucks a double bass. The rhythm section may substitute a brass bass, such as a tuba or Sousaphone. When an electronic organ is used, the organist can play the bass part with foot pedals on the instrument. Electric bass guitars have been incorporated into some jazz ensembles, primarily those that play a “fusion” of jazz and rock music.

**Other instruments.** Nearly every Western musical instrument and many non-Western instruments have been used in jazz at one time or another. The *vibraphone*, an instrument similar to the xylophone, and the violin deserve special mention. The vibraphone has been especially popular in combos. The violin has had only a few notable soloists in jazz, possibly because its volume could not match the power of the trumpet or trombone in ensemble. But throughout jazz history there have been some violinists who have skilfully adapted this basically classical music instrument to jazz. Modern amplification and sound manipulation devices have given the violin new and exciting possibilities as a jazz instrument.

### The history of jazz

**The roots of jazz.** The folk songs and plantation dance music of black Americans contributed much to early jazz. These forms of music occurred throughout the Southern United States during the late 1800’s.

Ragtime, a musical style that influenced early jazz, emerged from the St. Louis, Missouri, area in the late 1890’s. It quickly became the most popular music style in



A traditional jazz band consists of a front line of a trumpet, trombone, and clarinet or saxophone, and a rhythm section of drums, a bass, a piano, and often a guitar or banjo. Jelly Roll Morton, at the piano, led this 1920's jazz group.

the United States. Ragtime was an energetic and syncopated variety of music, primarily for the piano, that emphasized formal composition. See **Ragtime**.

The blues is a form of music that has always been an important part of jazz. The blues was especially widespread in the American South. Its mournful scale and simple repeated harmonies helped shape the character of jazz. Jazz instrumentalists have long exploited the blues as a vehicle for improvisation. See **Blues**.

**Early jazz.** Fully developed jazz music probably originated in New Orleans at the beginning of the 1900s. New Orleans style jazz emerged from the city's own musical traditions of band music for black funeral processions and street parades. Today, this type of jazz is sometimes called classic jazz, traditional jazz, or Dixieland jazz. New Orleans was the musical home of the first notable players and composers of jazz, including cornetists Buddy Bolden and King Oliver, cornetist and trumpeter Louis Armstrong, saxophonist and clarinetist Sidney Bechet, and pianist Jelly Roll Morton.

Jazz soon spread from New Orleans to other parts of the country. Fate Marable led a New Orleans band that played on riverboats travelling up and down the Mississippi River. King Oliver migrated to Chicago, and Jelly Roll Morton performed throughout the United States. Five white musicians formed a band in New Orleans, played in Chicago, and travelled to New York City, calling themselves the Original Dixieland Jass Band (the spelling was soon changed to "jazz"). This group made the earliest jazz gramophone recordings in 1917. Mamie Smith recorded "Crazy Blues" in 1920, and recordings of ragtime, blues, and jazz of various kinds soon popularized the music to a large and eager public.

The 1920's have been called the *golden age of jazz* or the *jazz age*. Commercial radio stations, which first appeared in the 1920s, featured live performances by the growing number of jazz musicians. New Orleans, Memphis, St. Louis, Kansas City, Chicago, Detroit, and New York City were all important centres of jazz.

A group of Midwest youths, many from Chicago's Austin High School, developed a type of improvisation and arrangement that became known as "Chicago style" jazz. These musicians included trumpeters Jimmy McPartland and Muggsy Spanier; cornetist Bix Beiderbecke; clarinetists Frank Teschemacher, Pee Wee Russell, Mezz Mezzrow, and Benny Goodman; saxophonists Frankie Trumbauer and Bud Freeman; drummers Dave Tough, George Wettling, and Gene Krupa; and guitarist Eddie Condon. They played harmonically inventive music, and the technical ability of some of the players, especially Goodman, was at a higher level than that of many earlier performers.

In New York City, James P. Johnson popularized a new musical style from ragtime called *stride piano*. In stride piano, the left hand plays alternating single notes and chords that move up and down the scale while the right hand plays solo melodies, accompanying rhythms, and interesting chordal passages. Johnson strongly influenced other jazz pianists, notably Count Basie, Duke Ellington, Art Tatum, Fats Waller, and Teddy Wilson.

Fletcher Henderson was the first major figure in big band jazz. In 1923, he became the first leader to organize a jazz band into sections of brass, reed, and rhythm instruments. His arranger, Don Redman, was the first to



**Bix Beiderbecke**, second from right, was one of the first famous jazz musicians. Beiderbecke, a cornet player, made some of the earliest important jazz recordings with a group called the Wolverines, above, in a warehouse recording studio in 1924.

master the technique of scoring music for big bands. Various Henderson bands of the 1920s and 1930s included such great jazz instrumentalists as Louis Armstrong and saxophonists Benny Carter and Coleman Hawkins.

Armstrong made some of his most famous recordings with his own Hot Five and Hot Seven combos from 1925 to 1928. These recordings rank among the masterpieces of jazz, along with his duo recordings of the same period with pianist Earl "Fatha" Hines. Armstrong also became the first well-known male jazz singer, and popularized *scat singing*—that is, wordless syllables sung in an instrumental manner.

During the late 1920s and early 1930s, jazz advanced from relatively simple music played by performers who often could not read music to a more complex and sophisticated form. Among the musicians who brought about this change were saxophonists Benny Carter, Coleman Hawkins, and Johnny Hodges; the team of violinist Joe Venuti and guitarist Eddie Lang; and pianist Art Tatum. Many people consider Tatum the most inspired and technically gifted improviser in jazz history.



**Duke Ellington**, at the piano, has been called the single most significant person in the history of jazz. He led a band almost continuously from the early 1920s until his death in 1974.





**Benny Goodman**, third from left, was a leading bandleader and clarinet player of the swing era. He also formed several notable small groups. This sextet included two musicians who were pioneers on their instruments—vibraphonist Lionel Hampton and electric guitarist Charlie Christian. Goodman was one of the first white musicians to integrate his band.

The **swing era** flourished from the mid-1930's to the mid-1940's. In 1932, Duke Ellington recorded his composition "It Don't Mean a Thing If It Ain't Got That Swing." "Swing" was soon adopted as the name of the newest style of jazz. Swing emphasizes four beats to the bar. Big bands dominated the swing era, especially those of Count Basie, Benny Goodman, and Duke Ellington.

Benny Goodman became known as the "King of Swing." Starting in 1934, Goodman's bands and combos brought swing to nationwide audiences through ballroom performances, recordings, and radio broadcasts. Goodman was the first white bandleader to feature black and white musicians playing together in public

performances. In 1936, he introduced two great black soloists—pianist Teddy Wilson and vibraphonist Lionel Hampton. Until then, racial segregation had held back the progress of jazz and of black musicians in particular. In 1938, Goodman and his band, and several guest musicians, performed a famous concert at Carnegie Hall in New York City. Their performance was one of the first by jazz musicians in a concert hall setting.

Other major bands of the swing era included those led by Benny Carter, Bob Crosby, Jimmy Dorsey, Tommy Dorsey, Woody Herman, Earl Hines, Andy Kirk, Jimmie Lunceford, Glenn Miller, Artie Shaw, Chick Webb, and, toward the end of the period, Stan Kenton. The bands in Kansas City, Missouri, especially the Count Basie band, had a distinctive swing style. These bands relied on the 12-bar blues form and *riff* backgrounds, which consisted of repeated simple melodies. They depended less heavily on written arrangements, allowing more leeway for rhythmic drive and for extended solo improvisations.

Boogie-woogie was another jazz form that became popular during the 1930's. Chiefly a piano style, it used eight beats to the bar instead of four. Boogie-woogie featured the traditional blues pattern for most themes. The music had an intense quality that created excitement through the repetition of a single phrase. Albert Ammons, Pete Johnson, Meade Lux Lewis, and Pinetop Smith were among its most important artists.

Jazz vocalists came into prominence during the swing era, many singing with big bands. Many fine jazz singers emphasized popular songs. These singers included Mildred Bailey, Ella Fitzgerald, Billie Holiday, Nat "King" Cole, Carmen McRae, and Sarah Vaughan. Blues singing at its best can be heard in recordings by Jimmy Rushing, Jack Teagarden, Joe Turner, and Dinah Washington. In addition to singing, Nat "King" Cole was a superb jazz pianist and Jack Teagarden was a great jazz trombonist.

**Bebop.** In the early 1940's, a group of young musicians began experimenting with more complicated chord patterns and melodic ideas in a combo setting. The group included trumpeter Dizzy Gillespie, alto saxophonist Charlie Parker, pianists Bud Powell and Thelonious Monk, and drummers Kenny Clarke and Max Roach. The style they developed was *bebop* or *bop*.

Most bop musicians had an exceptional technique. They played long, dazzling phrases with many notes, difficult intervals, unexpected breaks, and unusual turns in melodic direction. On slower tunes, they displayed a



**Woody Herman** was a popular bandleader for more than 40 years. Many musicians who joined his band later became noted soloists with their own groups. One of the most famous was tenor saxophonist Stan Getz, seated next to the guitar player.



**Bebop** revolutionized jazz in the 1940's. Alto saxophonist Charlie Parker, left, was a leader in the movement. He teamed with trumpeter Miles Davis, right, in an important bebop combo.

keen ear for subtle changes of harmony. Only extremely skilled musicians were able to play bebop well, and only sophisticated listeners at first appreciated it.

In bebop performances, musicians usually played an intricate melody, followed with long periods of solo improvisation, and restated the theme at the end. The bassist presented the basic beat for the group by plucking a steady, moving bass line. The drummer elaborated the beat with sticks or brushes on cymbals, snare drum, and tom-tom. The bass drum was reserved for unexpected accents called "bombs." The pianist inserted complex chords at irregular intervals to suggest, rather than state, the complete harmonies of the piece.

**Hard bop.** Bebop was followed in the 1950's by *hard bop*, or *funky*, jazz. This form emphasized some of the traditional values of jazz derived from gospel and blues music, including rhythmic drive, uninhibited tone and volume, and freedom from restricting arrangements. The hard bop leaders were drummer Art Blakey and pianist Horace Silver. Blakey led a combo called the Jazz Messengers from the mid-1950's until his death in 1990. The Jazz Messengers served as a training ground for many of the greatest soloists in jazz history. Trumpeter Clifford Brown and drummer Max Roach were co-leaders of another outstanding hard bop combo.

**Cool jazz** originated in the works of such musicians as tenor saxophonist Lester Young, who starred with Count Basie, and guitarist Charlie Christian, who played with Benny Goodman. In the late 1930's and early 1940's, these musicians made changes in the sound and style of jazz improvisation. For example, they softened the tones of their instruments, used syncopation more subtly, and played with a more even beat.

In 1948, tenor saxophonist Stan Getz recorded a slow, romantic solo of Ralph Burns's composition "Early Autumn" with the Woody Herman band. This work profoundly influenced many younger musicians. In 1949

and 1950, a group of young musicians that included trumpeter Miles Davis, alto saxophonist Lee Konitz, baritone saxophonist Gerry Mulligan, and arranger Gil Evans recorded several new compositions. These recordings emphasized a lagging beat, soft instrumental sounds, and unusual orchestrations that included the first successful use of the French horn and the tuba in modern jazz. The recordings, with Davis as leader, were later released as "The Birth of the Cool."

During the 1950's, many combos became identified with the cool movement. Some of the most successful combos were the Gerry Mulligan Quartet, the Modern Jazz Quartet, and the Dave Brubeck Quartet.

**The spread of jazz.** In the 1940's and 1950's, the sophisticated forms of bebop and cool jazz began to gain wide acceptance among intellectuals and college students. Jazz concerts became popular. Groups of jazz stars made a series of international tours called Jazz at the Philharmonic. The international growth of jazz resulted in many successful overseas tours by U.S. bands.

The introduction of the 33 $\frac{1}{3}$  rpm long-playing (LP) record, which was first produced commercially in 1948, also helped spread the popularity of jazz. For 30 years, jazz recordings had been limited to 78 rpm records that restricted performances to about 3 minutes in length. The LP allowed recorded performances to run many minutes. The LP also permitted a number of shorter performances to be issued on a single record.

During the 1950's, musicians in other countries began to improve greatly as jazz performers as they were exposed to performances by American musicians through recordings and concerts. Sweden, France, Germany, Japan, and other countries developed players and composers whose work compared favourably with that of the leading Americans. The first non-American jazz musicians to influence Americans were Belgian-born guitarist Django Reinhardt in the late 1930's, and George



**Louis Armstrong** was probably the most popular jazz artist in history. The trumpeter and singer appeared in several films, including *High Society* (1950), above.





**Dave Brubeck**, a classically trained pianist, led one of the most popular jazz quartets of the 1950's. The combo featured the lyrical solos of alto saxophonist Paul Desmond.

Shearing, a blind, English-born pianist who went to live in the United States in 1947.

In 1954, the first large American jazz festival was held at Newport, Rhode Island. Since then, annual festivals also have been held in Monterey, California, U.S.A.; New York City; Chicago; Nice, France; Montreux, Switzerland; Warsaw, Poland; Berlin, Germany; and many other locations throughout the world. These festivals have featured almost all of the most popular jazz musicians and have introduced many extended concert works by Duke Ellington, Billy Strayhorn, John Lewis, and others.

The U.S. government began to use jazz as an instrument of international goodwill in 1956. The U.S. Department of State sponsored tours of the Near and Middle East and Latin America by a big band led by Dizzy Gillespie. In 1962, Benny Goodman toured the Soviet Union as part of a cultural exchange programme.

**New directions.** Beginning in the 1950's, jazz became even more experimental. Jazz music began to feature nontraditional instruments, such as French horn and bass flute. Jazz musicians began to take an interest in non-Western music, especially the *modes* (different arrangements of scales), melodic forms, and instruments of Africa, India, and the Far East.

In the late 1950's, John Lewis, musical director of the Modern Jazz Quartet, worked with classical musician and composer Gunther Schuller to write and play orchestral works that combined elements of modern jazz and classical concert music. Stan Kenton also played this so-called *third stream music* when he toured the United States with a 40-piece orchestra.

Also during this period, pianist George Russell devel-

oped a jazz theory of modes. In 1959, the Miles Davis combo, with pianist Bill Evans and saxophonists John Coltrane and Cannonball Adderley, recorded compositions and improvised solos based on modes rather than on patterns of chords.

In 1960, saxophonist Ornette Coleman reshaped the thinking of younger jazz musicians when he recorded the album *Free Jazz* with a double quartet. In this recording, Coleman discarded harmony, melody, and regular rhythms. He substituted unstructured improvisation played *atonally* (in no definite key). Pianist Cecil Taylor and bassist Charles Mingus conducted similar atonal experiments.

In the 1960's, the influence of the music of India entered jazz through the adaptations of John Coltrane. Jazz musicians also began to use more unusual metres, such as  $\frac{5}{4}$ ,  $\frac{7}{4}$  and  $\frac{9}{8}$ .

**Fusion.** In the 1970's, many musicians blended jazz and rock music into *fusion jazz*. Fusion combined the melodic and improvisational aspects of jazz with the rhythms and instruments of rock. Electronic music played an important part in fusion. Jazz pianists began exploring the increased sound potential of synthesizers. Horn and string players began to use electronics to intensify, distort, or multiply their sounds. Many well-known jazz musicians gained new popularity by playing fusion. Some of the best-known fusion musicians were guitarist George Benson, trumpeters Donald Byrd and Miles Davis, pianist Herbie Hancock, and two combos, Weather Report and the Mahavishnu Orchestra.

At the same time, many veteran jazz musicians retained their popularity by leading groups that played in the swing, bebop, and cool styles. These leaders included Stan Getz, Dizzy Gillespie, Woody Herman, Gerry Mulligan, and Oscar Peterson.

**The late 1900's.** During the 1980's, a number of young jazz musicians returned to *mainstream jazz*. Mainstream jazz includes elements of the swing, cool, and bebop styles. The most widely acclaimed young musician of the 1980's was trumpeter Wynton Marsalis, a performer of both jazz and classical music. Marsalis



**Fusion**, a form of jazz with rock rhythms, became popular in the 1970's. Miles Davis, *third from right*, who earlier was a pioneer in bebop and cool jazz, led several fusion combos.

plays with brilliant technique and tone. He and his brother, saxophonist Branford Marsalis, have led excellent hard bop combos.

Many young musicians continued to forge ahead with fusion groups. Two of the most widely respected fusion artists are the brothers trumpeter Randy Brecker and saxophonist Michael Brecker. In addition, Jane Ira Bloom displays a mastery of the soprano saxophone and the synthesizer.

In the 1980's, some so-called *New Wave* musicians adopted *minimalism*, a style that often repeats simple patterns for long periods of time. Trombonist George Lewis has experimented with combinations of free jazz, synthesized sound, African rhythms, and unusual horn techniques. Another trombonist of dazzling technique is Ray Anderson. Bebop, rock, popular, free, and various mixtures are all blended in his recordings. One group, the World Saxophone Quartet, omitted the rhythm section while preserving most of the other traditional rhythmic, harmonic, and melodic elements of jazz.

Today, jazz continues to feature a variety of styles. Many musicians play in historic styles such as swing and bebop. Others seek a more experimental approach. For example, the Art Ensemble of Chicago blends free jazz, African costumes and makeup, exotic instruments, and surprise techniques into theatrical musical events. Ornette Coleman's group, Prime Time, mixes free and fusion jazz in new and interesting ways.

Electronics technology is gaining a greater role in jazz music. Such young jazz composers as Michael Daugherty are demonstrating that live musicians can interact creatively with computer-generated sound.

By the early 1990's, a new generation of young jazz musicians had emerged, inspired by the commercial and artistic success of Wynton Marsalis. Young musicians who have gained critical praise include saxophonists Scott Hamilton and Christopher Hollyday, pianist Marcus Roberts, trumpeters Phillip Harper and Roy Hargrove, trombonist Dan Barrett, and guitarist Howard Alden.

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Ellington, Duke  
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#### Outline

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#### Questions

- What is *third stream music*?
- What types of music influenced the early sound of jazz?
- What is *improvisation*?
- What is *stride piano*?
- How did Fletcher Henderson influence jazz history?
- Which instruments make up the front line of a combo? The back line?
- How did the invention of the long-playing record affect jazz?
- What is *bebop*? *Hard bop*?
- How have developments in electronics changed jazz?
- What are the characteristics of *cool jazz*?

**Jazz Age.** See *Roaring Twenties*.

**Jean Baptiste de la Salle, Saint** (1651-1719), a French priest, founded the Institute of Brothers of the Christian School, a Roman Catholic religious order devoted to teaching boys. The order is commonly known as the Christian Brothers. His schools stressed practical skills and religious instruction rather than classical education. La Salle also pioneered teacher training colleges. His books on piety and on teaching methods were widely read.

La Salle was born in Reims. He studied for the priesthood in Paris and was ordained in 1678. La Salle was struck by the ignorance of the lower classes. He tried to train teachers in Reims, but he became convinced that only a religious order of brothers could have the dedication to effectively educate the poor. La Salle set up his first community of Christian Brothers in 1684. At the time of his death, communities had been established throughout France and in Rome. La Salle's feast day is April 7.

**Jeanne d'Arc.** See *Joan of Arc, Saint*.

**Jeanneret-Gris, Charles Édouard.** See *Le Corbusier*.

**Jeans, Sir James Hopwood** (1877-1946), contributed to the understanding of the behaviour of molecules, especially to the kinetic theory of gases (see *Gas*). He also suggested a theory of the creation of the universe. He became known for interpreting the results of research in a clear style. He wrote *The Dynamic Theory of Gases* (1904) and *Problems of Cosmogony and Stellar Dynamics* (1919). Jeans was born in London. He graduated from Cambridge University. See also *Earth* (The birth of the solar system).

**Jeddah.** See *Jidda*.

**Jeep** is a small all-purpose vehicle used by the armed forces of many countries. It was first used by the United States military, during World War II (1939-1945). The term *jeep* may come from the letters *G.P.*, the initials for *general purpose* vehicle. When capitalized, the word *Jeep* is a trademark for a civilian automotive vehicle that was patterned after the armed forces jeep.

A jeep is approximately 3.5 metres long and 160 centimetres wide. It has a four-cylinder engine and four-wheel drive. Its maximum speed is about 105 kilometres per hour. A jeep can carry four persons. It can haul loads weighing as much as 550 kilograms.

Jeeps are reliable vehicles and can move rapidly over





A jeep called a "Hummer" can travel over rough terrain at high speeds. The armed forces of many countries use these reliable, durable vehicles for a variety of tasks.

rough terrain. In addition to carrying personnel and cargo, armed forces jeeps are used as platforms for various weapons, such as machine guns and small missiles. Jeeps are now widely used in civilian life.

**Jefferson, Thomas** (1743-1826), was the third president of the United States, holding the office from 1801 to 1809. He is also remembered as the author of the U.S. Declaration of Independence. Jefferson was also an important architect, inventor, lawyer, and scholar.

Jefferson was one of the leading American architects of his time. He designed the Virginia Capitol, the University of Virginia, and his own home, Monticello. He encouraged the advancement of art and music in the United States. In addition, he invented a decoding device, a lap desk, and an improved type of plough. His collection of more than 6,400 books became a major part of the Library of Congress. Jefferson also revised Virginia's laws and founded its state university.

In politics, Jefferson worked for freedom of speech, press, religion, and other civil liberties. He supported the addition of the Bill of Rights to the U.S. Constitution.

**Early life.** Jefferson was born on April 13, 1743, in the British colony of Virginia. After finishing college in 1762, he studied law. He was admitted to the bar in 1767. In 1775, he was chosen as one of the delegates to the Second Continental Congress in Philadelphia, in the colony of Pennsylvania.

#### Important dates in Jefferson's life

<b>1743</b>	(April 13) Born in Goochland (now Albemarle) County, Virginia.
<b>1776</b>	Wrote the Declaration of Independence.
<b>1779</b>	Elected governor of Virginia.
<b>1785</b>	Appointed minister to France.
<b>1789</b>	Became United States secretary of state.
<b>1796</b>	Elected vice president of the United States.
<b>1801</b>	(Feb. 17) Elected president of the United States.
<b>1804</b>	Reelected president.
<b>1826</b>	(July 4) Died at Monticello, his Virginia home.

**Political career.** During the spring of 1776, after the American Revolution began, Congress appointed a committee to draw up a declaration of independence. Jefferson wrote the draft and it was approved with few changes. Congress adopted the declaration on July 4. See **Declaration of Independence**.

In September 1776, Jefferson resigned from Congress and returned to the Virginia House of Delegates. The Virginia Assembly elected him governor for one-year terms in 1779 and 1780. In 1784, he was elected to the U.S. Congress. In May 1784, Congress sent Jefferson to France to negotiate European treaties of commerce. The next year, Jefferson succeeded Franklin as minister to France.

Jefferson returned to the United States in November 1789. He became secretary of state under President George Washington. Sharp differences soon arose between Jefferson and the secretary of the treasury, Alexander Hamilton. Jefferson opposed Hamilton's plans to encourage shipping and manufacturing, and Hamilton's proposed national bank.

The differences between Jefferson and Hamilton led to the development of the first U.S. political parties. The Federalists adopted Hamilton's principles. Jefferson led the Democratic-Republicans.

In 1796, Jefferson ran for president against John Adams, the Federalist candidate. Adams was elected president. Jefferson became vice president.

The Democratic-Republicans again nominated Jefferson for president in 1800, to run against President Adams. They nominated former Senator Aaron Burr of New York for vice president. Jefferson defeated Adams, but Burr had received the same number of votes as Jefferson. Because of the voting procedures of the time, Burr was technically also a candidate for president. The House of Representatives had to settle the election, and on Feb. 17, 1801, chose Jefferson.

**First administration (1801-1805).** Probably the greatest achievement of Jefferson's first administration was the Louisiana Purchase. The Louisiana Territory, a vast region between the Mississippi River and the Rocky Mountains, had been transferred from France to Spain in 1762. Jefferson learned in 1801 that Spain planned to cede the area back to France. In 1803, Jefferson's government reached an agreement with the French government for the purchase of the whole of Louisiana. The purchase almost doubled the country's size. See **Louisiana Purchase**.

**Second administration (1805-1809).** In 1804, Jefferson was reelected president. War had broken out between Great Britain and France in May 1803. Jefferson worked to keep the U.S. out of the war, while at the same time upholding the country's rights as a neutral.

In June 1807, the British frigate *Leopard* fired on an American ship, the *Chesapeake*, after the captain of the American vessel refused to let the British search his ship for deserters. The incident almost brought the two nations to war. Jefferson believed that he could bring the warring nations to reason by closing American markets to them, and not selling them any supplies. In 1807, he forced a law through Congress prohibiting exports from the United States and barring American ships from sailing into foreign ports. After 14 months, it became clear that the embargo was hurting the United States more

than either Britain or France. Public clamour against the measure grew overwhelming, and Congress eventually repealed it in March 1809.

**Later years.** Jefferson retired from the presidency in 1809. He turned to the study of music, architecture, chemistry, religion, philosophy, law, and education. He also founded the University of Virginia, which opened in March 1825.

**Jeffreys, George** (1645-1689), Lord Jeffreys of Wem, was a Tory judge who worked vigorously to support Charles II and James II against their Whig opponents. He lived in an age when false testimony was common, and he was noted for his savage treatment of witnesses. As one of the judges in the so-called Popish Plot trials, he failed to expose the lying testimonies of Titus Oates and other perjured fanatics (see **Popish Plot**). As a result, many innocent people were executed. In 1685, after the Duke of Monmouth's Rebellion had failed, Jeffreys and four other judges convicted 1,385 people of treason. More than 200 people were eventually executed. The trials were later known as the *Bloody Assizes*. When James II fled to France in 1688, Jeffreys also tried to escape. He was caught and imprisoned in the Tower of London, where he died. Jeffreys was born near Wrexham, in Clwyd, Wales.

**Jeffreys, Sir Harold** (1891-1989), a British geophysicist, became a leading authority on the structure of the earth. He expounded his ideas in his book *The Earth: Its Origin, History, and Physical Constitution* (1924). He provided the theory for the modern method of exploring the inside of the earth by means of seismic waves from explosions near the surface (see **Seismology**). This technique is used in prospecting for oil and gas.

Jeffreys also wrote books on scientific method and mathematical physics. He was born in Durham, England, and educated at Cambridge University. From 1946 to 1958, he was Plumian Professor of Astronomy and Experimental Philosophy at Cambridge.

**Jeffries, James Jackson** (1875-1953), was an American boxer. He won the world's heavyweight boxing championship in his 13th professional fight. He won the championship on June 9, 1899, by knocking out Bob Fitzsimmons in 11 rounds. He retired undefeated in 1905, but made a comeback in 1910. Jack Johnson knocked him out in 15 rounds. Jeffries later promoted amateur boxing. He was born in Carroll, Ohio.

**Jehoiakim** (? -598? B.C.) was king of Judah from about 608 B.C. until his death. In 605 B.C., he led a revolt against the Babylonian king who then controlled Judah, and died in the siege of Jerusalem that followed the uprising.

**Jehoshaphat** was a ruler of the kingdom of Judah during the first half of the 800's B.C. In the Bible, Jehoshaphat's story is told in II Chronicles 17:1-21:3.

During the reign of Jehoshaphat, Judah settled its traditional differences with the neighbouring kingdom of Israel, and both kingdoms enjoyed a temporary period of mutual prosperity. Jehoshaphat's son Jehoram married Athaliah, the sister (or daughter) of Ahab, who was king of Israel.

Jehoshaphat received tribute from the Philistines and controlled the kingdom of the Edomites. However, the Bible says that there was opposition in Judah to Jehoshaphat's cooperation with Ahab and Ahab's son Ahaziah.

**Jehovah** is a form of *Yahweh*, the sacred Hebrew name for God. According to the Bible, God first revealed the name Yahweh to the Israelite leader Moses (Exod. 3: 14). Jews thought the name Yahweh was too holy to pronounce. By the 200's B.C., they were using the word *Adonai* as a respectful substitute when reading from the scriptures. When Yahweh was preceded by Adonai, they said *Elohim*. When writing the word, Jewish scribes mixed the vowels of Adonai and Elohim with the consonants of YHWH, the traditional spelling of Yahweh. This mixing resulted in the Latin spelling, Jehovah, which carried over into English.

See also **God**.

**Jehovah's Witnesses** are members of a religious group that uses the Watch Tower Bible and Tract Society as its corporate body. They took their name from Isaiah 43:12: "Ye are my witnesses, saith Jehovah, and I am God" (American Standard Version).

The Witnesses believe there is one God, called Jehovah. They consider the resurrected Jesus to be divine in nature but, as God's Son, not equal to God as Father. They consider Abel, the son of Adam and Eve, as the first of Jehovah's Witnesses, and cite Hebrews 11 and 12:1 as their source. The Witnesses use the Bible as their sole guide to belief. They strive to give exclusive devotion to Jehovah, and they obey Jesus' command to preach "this good news of the Kingdom" (Matt. 24:14). They believe God's war of Armageddon will rid the earth of all wickedness in this generation.

The modern Jehovah's Witnesses was started in Pennsylvania, U.S.A., in the 1870's by Charles Taze Russell and his associates. The Watch Tower Bible and Tract Society was incorporated in 1884 with Russell as president. The society's magazine, *The Watchtower*, was first published in 1879. It is printed in more than 100 languages. Jehovah's Witnesses conduct activities throughout the world. Present membership is about 3,900,000.

**Jehu** was a king of Israel. He became king after killing King Jehoram. Jehoram was the son of Ahab, who, with Queen Jezebel, encouraged the worship of Baal in Israel (see **Baal**). This encouragement angered the prophets and others loyal to Israel's God. In about 842 B.C., the prophet Elisha sent one of his disciples to anoint Jehu, an officer in King Jehoram's army, as king in place of Jehoram.

Jehu then drove in his chariot to the capital, Jezreel. He killed Jehoram when Jehoram rode out to meet him. He then killed Jehoram's cousin, King Ahaziah of Judah, who had come to visit Jehoram. Queen Jezebel was thrown from a window and trampled underfoot. Jehu then murdered the entire royal family. Finally, he summoned all the worshippers of Baal into their temple, where his soldiers butchered them. The story of Jehu is told in the Bible (II Kings 9-10). Jehu died about 815 B.C. He and his descendants ruled Israel for more than 100 years.

**Jekyll and Hyde.** See Stevenson, Robert Louis (Novels).

**Jellicoe, Sir John** (1859-1935), was a British naval officer during World War I. He commanded the British Grand Fleet at the battle of Jutland in May 1916, the only time the main British and German fleets met in combat. The result of the battle was controversial. Although the British suffered greater damage, the German fleet never



again tried to contest British control of the North Sea. Jellicoe then directed the campaign against German submarine warfare.

Jellicoe was born in Southampton, England, and joined the navy when he was 12 years old. He served in Egypt in 1882 and in the Boxer Rebellion in China in 1900. Jellicoe served as governor general of New Zealand from 1919 to 1924.

See also Jutland, Battle of.

**Jelly.** See Jam and Jelly.

**Jellyfish** is the common name of a type of sea animal that biologists call a *medusa*. Jellyfish range in size from *species* (kinds) that are no larger than a pea to an arctic jellyfish that may be over 2 metres in diameter. Jellyfish get their names from the jellylike material between the two layers of cells that make up the animal's body. This substance serves as a skeleton to support the fragile body wall and to help the jellyfish maintain buoyancy in the water.

The jellyfish body looks like a bell or umbrella. A short tube, which contains the mouth, hangs from the centre of the body like a bell clapper. The edges of this tube form four frilly projections called *oral arms*. Another group of projections, called *tentacles*, hang down from the edges of the body. Each kind of jellyfish has a certain number and length of tentacles.

Jellyfish are classified as *cnidarians*, a phylum that includes corals, sea anemones, and hydras. Large jellyfish make up the class *Scyphozoa* and are called *scyphozoan jellyfish*. Scyphozoan jellyfish are about the size of a soup bowl. They may be pale orange, pink, blue, or other colours. Jellyfish swim by expanding the body like



The sea wasp is a jellyfish found mainly in the waters of the Great Barrier Reef off the coast of Australia. A severe sting from a sea wasp can kill a person within three minutes.

an opening umbrella, then pulling it together again rapidly. This squeezes water out from beneath the body and the jellyfish moves upward. When these movements stop, the jellyfish sinks to the ocean floor. On its way down, the jellyfish catches small animals that touch its tentacles or oral arms. These parts contain stinging cells that explode when touched, driving tiny *toxic* (poisonous) threads into the victim and paralysing it. The victim is then passed to the mouth of the jellyfish and swallowed.

Some jellyfish can inflict painful and even dangerous stings to people. Jellyfish called *sea wasps* inject their victims with a poison that is deadlier than any snake venom. Some people have died less than three minutes after being stung by a sea wasp. Sea wasps are found near the coasts of northern Australia and the Philippines.

Scyphozoan jellyfish produce their young from eggs. These eggs develop into tiny *polyps*, which attach themselves to the sea bottom (see *Cnidarian*). The jellyfish grow from the polyps by a process called *budding*. They are arranged on each polyp like a stack of saucers. The jellyfish, when they reach a certain size, are released from the polyp and they develop into adult jellyfish.

**Scientific classification.** Jellyfish belong to the phylum *Cnidaria*. Large jellyfish make up the class *Scyphozoa*. Most small jellyfish belong to the class *Hydrozoa*.

See also *Animal* (picture: Animals of the oceans); *Hydra*; *Portuguese man-of-war*; *Sea anemone*; *Sea wasp*.



The jellyfish has no bones. Instead, its body, shaped like an open umbrella, is supported by a thick layer of a jellylike substance called *mesogloea*. The jellyfish's tentacles contain stinging cells that inject a paralysing poison into its prey.

**Jemison, Mae Carol** (1956– ), an American astronaut and doctor, became the first black woman to travel in space. In September 1992, she made an eight-day flight on the spacecraft *Endeavour*. Jemison conducted the first experiment that fertilized frog eggs in space. She also studied the loss of bone tissue experienced by people and other animals in orbiting spacecraft. Her research was aimed at determining how gravity affects the development of complex organisms.

Jemison was born in Decatur, Alabama, and moved to Chicago as a young child. From 1983 until 1985, she was the Area Peace Corps Medical Officer for Sierra Leone and Liberia.

**Jenghis Khan.** See Genghis Khan.

**Jenkins, Charles Francis** (1867-1934), was an American who contributed to the development of the film projector. He developed the *phantoscope* between 1891 and 1894. The Franklin Institute, a scientific and educational institution in Philadelphia, U.S.A., later recognized this as the first successful projector of life-sized pictures from narrow motion-picture film. Jenkins also worked on mechanical scanning devices for television and on other inventions in the fields of electronics and photography. He was born near Dayton, Ohio.

**Jenkins, Roy Harris** (1920– ), is a British politician. He served in the British Parliament from 1948 to 1976 as a member of the Labour Party. He was also chancellor of the exchequer from 1967 to 1970 and home secretary from 1965 to 1967 and from 1974 to 1976. From 1977 to 1981, he served as president of the Commission of the European Community (now the European Union).

Jenkins left the Labour Party in 1981. He helped form the Social Democratic Party (SDP), which in 1988 joined with the Liberal Party to form the Social and Liberal Democratic Party (later known as the Liberal Democrats). Jenkins served as leader of the SDP in 1982 and 1983, and he was an SDP member of Parliament from 1982 to 1987. In 1987, he became a life peer, taking the title Lord Jenkins of Hillhead.

Jenkins was born in Abersychan, near Merthyr Tydfil, Wales. He graduated from Oxford University.

**Jenne**, also called *Djenné*, is a small city in Mali. From the 1200s to the 1700s, it was one of the centres of Muslim civilization in West Africa. For the location of Jenne, see *Songhai Empire* (map).

Jenne was protected from military attack by treacherous swamps and by a wall. Salt from desert mines, and cloth, copper, and silver from north of the Sahara, were traded in Jenne for gold, kola nuts, leather, and other products of regions south of the desert. Jenne had a school that was famous in the study of law, medicine, and Islam.

See also *Sunni Ali*.

**Jenner, Bruce.** See *Decathlon*.

**Jenner, Edward** (1749-1823), a British doctor, discovered vaccination as a means of preventing smallpox. This disease was an ever-present horror through the centuries (see *Smallpox*).

It was common knowledge in Jenner's time that a person could catch smallpox only once. Many people tried to inoculate themselves with matter from smallpox sores. They hoped to catch a light case of the disease, and then be immune to it for the rest of their lives. But the method was dangerous.

**Jenner's work.** Jenner began experimenting in his home town, Berkeley, Gloucestershire, England. Many people there believed that dairymaids who had caught cowpox could not catch smallpox. Cowpox is a minor disease that causes a few sores on the hands but carries little danger of disfigurement or death. In 1796, Jenner took matter from the hand of Sarah Nelmes, a local dairymaid. She had become infected with cowpox while milking the cows. Jenner then made two cuts on the arm of James Phipps, a healthy eight-year-old boy, and inserted the matter from one of Sarah's cowpox sores. The boy then caught cowpox. Forty-eight days later, Jenner introduced smallpox matter into the boy's arm. Ordinarily fatal, the smallpox matter had no effect, because the boy had been vaccinated with cowpox matter. Jenner's experiment proved to be successful. This was the first vaccination ever given.

**Recognition.** After several more experiments, Jenner published *Inquiry into the Causes and Effects of the Variolae Vaccinae* (1798). He then went to London to make his discovery known to the medical world. In 1799, he published *Further Observations on the Variolae Vaccinae or Cowpox*, which he wrote chiefly as a reply to people who opposed vaccination. After 1800, vaccina-

Edward Jenner, right, gave the first vaccination for smallpox to James Phipps in England in 1796. below: Jenner used cowpox matter that had been taken from the infected hand of Sarah Nelmes, below right. He risked his medical reputation in attempting the vaccination.





tion became accepted as a means of preventing people catching smallpox.

Honours came to Jenner from all parts of the world. Parliament granted him 10,000 pounds in 1802, and another 20,000 pounds in 1806, because he devoted so much of his time to his discovery that he lost income from his regular medical practice. Oxford University conferred an honorary Doctor of Medicine degree on Jenner in 1813.

Jenner was born on May 17, 1749, in Berkeley, Gloucestershire. In 1770 he went to London to study medicine under John Hunter, a British surgeon. He returned to Berkeley, where he began practising medicine, and he remained there most of his life.

See also **Medicine** (The development of immunology).

**Jenner, Sir William** (1815-1898), a British doctor, studied certain acute communicable diseases and did much to advance their treatment. His most important contribution was his emphasis on the difference between typhoid fever and typhus (see **Typhoid Fever**; **Typhus**). Jenner's efforts have made possible a more practical treatment of these diseases. His works include the papers "On the Identity and Non-Identity of Typhoid Fever" and "Diphtheria, Its Symptoms and Treatment," as well as clinical lectures.

Jenner was born in Chatham, in Kent, England, and graduated from University College, London. He later taught there. He served as president of the Royal College of Physicians from 1881 to 1888. He became an extremely successful and prominent practitioner in the field of medicine.

**Jennet.** See **Donkey**.

**Jenney, William Le Baron** (1832-1907), was an American architect and engineer. He designed the first metal-frame skyscraper, the Home Insurance Building in Chicago. It was built in 1884 and 1885 and torn down in 1931. To support the building's upper floors, Jenney's design used metal columns and beams, rather than traditional stone and brick. This method greatly reduced the weight of the building, making it possible to build taller structures.

Jenney was born in Fairhaven, Massachusetts. In 1868, he established an office in Chicago, specializing in commercial buildings. During the 1870's, he trained several men who later became leaders of a style of architecture called the *Chicago School*. They included Daniel Hudson Burnham, William Holabird, Martin Roche, and Louis Henri Sullivan.

See also **Architecture** (Early modern architecture in America).

**Jennings, Sir Ivor** (1903-1965), a British academic, became a leading authority on law and government. He held a number of academic posts in law and took an important part in the legal and political development of Ceylon (now Sri Lanka), Malaya (now Malaysia), India,

and Pakistan. Jennings wrote many books, including *The Law and the Constitution* (1933), *Cabinet Government* (1936), *The Approach to Self-Government* (1956), and the three-volume work *Party Politics* (1960-1962).

William Ivor Jennings was born in Bristol, England, and was educated at Cambridge University. He became Master of Trinity Hall, Cambridge, in 1954.

**Jenolan Caves** are a series of caves in Australia. They are famous for their spectacular limestone formations. The caves lie in the Main Range, about 160 kilometres west of Sydney. The name *Jenolan* (also spelled *Genowlan*) means *high place* and comes from the Aboriginal name for a mountain in the area. The Aborigines originally called the caves *Binomea* or *Benomera*, meaning *holes in a hill*. Chief caves in the series include Baal, Chifley, Imperial, Jubilee, Lucas, Orient, River, and Skelton. The caves are part of a state government reserve. More than 6 million people have visited the caves since they were opened to the public in the 1860's.

No one knows who was the first European to see the caves. According to one story, a bushranger named McKeown (also spelled *McEwan*) discovered the caves. But some people believe that the caves were discovered in 1838 by James Whalan, who was searching for McKeown in the area.

See also **New South Wales** (picture).

**Jensen, J. Hans** (1906-1973), a German physicist, shared the 1963 Nobel Prize for physics with Maria Goeppert Mayer and Eugene Paul Wigner. Working independently, Jensen and Mayer prepared almost identical papers on the shell structure of atomic nuclei. They showed that atomic nuclei possess shells similar to the electron shells of atoms. The shells contain varying numbers of protons and neutrons. This permits a systematic arrangement of nuclei according to their properties.

Jensen was born in Hamburg, Germany. He studied at the University of Hamburg. From 1949 until his death, he was director of the Institute of Theoretical Physics at the University of Heidelberg.

See also **Mayer, Maria Goeppert**.

**Jenson, Nicolas** (1415?-1480), a French printer, introduced roman types in 1470. His types have often been imitated but have never been surpassed.

Jenson was born in Sommevoire, France. The French king apparently sent him on a secret mission to Mainz, Germany, in 1458 to see how Johannes Gutenberg printed books from type (see **Gutenberg, Johannes**). But Jenson never returned to France. He learnt typography in Germany and then settled in Italy. He died in Rome.

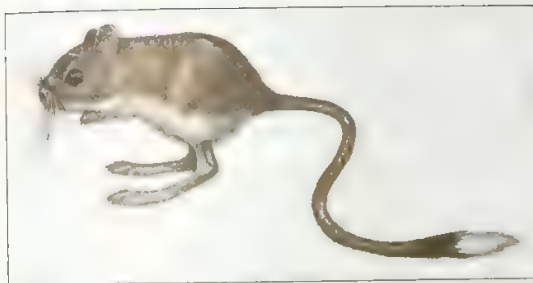
**Jerboa** is a mammal that looks like a tiny kangaroo. Jerboas are fawn-coloured (light, yellowish-brown) and have pointed ears, buttonlike eyes, and long whiskers. Their front legs are short, and their hind legs are long and powerful. Jerboas usually walk on their hind legs. When frightened they speed away in bounding leaps, like kangaroos.



Sir Ivor Jennings



William Le Baron Jenney



The **jerboa** looks like a tiny kangaroo, but it is really a rodent. Like the kangaroo, the jerboa leaps away on its strong hind legs when startled, and it uses its long tail for balance.

Jerboas are rodents. They belong to the same animal order as mice, rats, and squirrels. They live in deserts and dry areas in Africa, Asia, and eastern Europe. Jerboas live in groups in *burrows* (tunnels). They come out at night to look for food. They eat plants, seeds, and insects. In cold climates, jerboas *hibernate* (sleep through the winter).

Scientists have identified 25 *species* (kinds) of jerboas. The feather-footed jerboa, one of the most widespread species, is found from the central part of Russia through Mongolia to northern China.

Jerboas and *kangaroo rats*, which live in the United States, are so similar that it is hard to tell the two animals apart. They are an example of what biologists call *convergent evolution*. Study of the skulls and teeth of the two animals show that they had quite different ancestors. See **Kangaroo rat**.

**Scientific classification.** Jerboas make up the jerboa family, Dipodidae. The feather-footed jerboa is *Dipus sagitta*.

**Jeremiah, Book of,** is a book of the Hebrew Bible, or Old Testament, named after a Hebrew prophet. Jeremiah began prophesying about 627 B.C. He continued as a prophetic voice during the fall of the kingdom of Judah to the Babylonians and the destruction of Jerusalem and the Temple in 587 or 586 B.C. His prophecies also continued into the exile that followed. See **Jews** (Invasions and conquests).



Detail of a fresco about 1510 by Michelangelo on the ceiling of the Sistine Chapel, Vatican City

**Jeremiah** was a Hebrew prophet whose sayings are found in the Book of Jeremiah in the Old Testament.

Jeremiah perceived that the sin of the people of Judah, like that of all nations, would bring about punishment. When he proclaimed this message and called for repentance, he was arrested. He survived the destruction of Jerusalem, and his prophecies became ones of comfort, restoration, and hope for a new moral order.

The Book of Jeremiah contains biographical narratives as well as Jeremiah's poetic prophecies. Much of what is known about Biblical prophets and prophecy comes from the book. Jeremiah consists of four main sections, collected during the prophet's life and in the century following. The first 25 chapters mostly record Jeremiah's haunting visions, oracles of judgment, and laments. Chapters 26 to 45 consist mostly of speeches by Jeremiah and stories about him. His prophecies against foreign nations make up the next six chapters. The last chapter describes the fall of Jerusalem.

**Jericho** (pop. 5,312) lies in the West Bank, a Middle Eastern territory inhabited chiefly by Palestinians (see **West Bank** [map]). Some scholars believe Jericho may have been settled as early as 8000 B.C. Settlements have been built on top of one another. In the Bible, the Israelites under Joshua marched around the city, then shouted and blew their trumpets so that the city walls fell down (see **Joshua**).

In 1967, Israel defeated Jordan, Egypt, and Syria in a six-day war and seized the West Bank and other Arab territory. In September 1993, Israel and the Palestine Liberation Organization signed an agreement that named Jericho as the first West Bank area to be given a form of Palestinian self-rule.

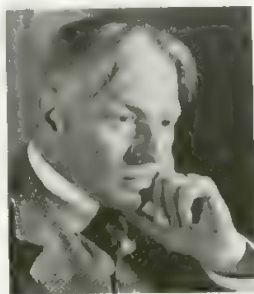
**Jeroboam** is the name of two kings who ruled the northern kingdom of Israel. This northern kingdom and a southern kingdom called Judah split apart after the death of King Solomon about 922 B.C.

**Jeroboam I**, the first ruler of the northern kingdom, reigned from about 922 to 903 B.C. He had been an official under Solomon, but he opposed Solomon's policies and took refuge in Egypt. After Solomon died and his son Rehoboam became king, the northern tribes rebelled and made Jeroboam their ruler (see **Solomon**). Jeroboam revived two ancient shrines—one at Bethel and one at Dan—to free his people from dependence on the religious centre in Jerusalem, which was in Judah.

**Jeroboam II** ruled from about 785 to 745 B.C. His rule saw a revival of Israel's political power. The nation made economic advances but also experienced political corruption and oppression of the poor.

**Jerome, Jerome K.** (1859-1927), was a British playwright, novelist, and humorist. *Three Men in a Boat* (1889), a book of humour, is the best known of his comic works. However, the most popular play by Jerome, *The Passing of the Third Floor Back* (1907), was not a comedy. In the play, Jerome showed the influence that a Christlike stranger had on a group of sordid, shiftless people.

Jerome Klapka Jerome was born at Walsall, West



Jerome K. Jerome





Jerome K. Jerome wrote *Three Men in a Boat*, a hilarious story of three men and a dog on a boat trip up the River Thames, left.

Midlands, England. He was educated at Marylebone Grammar School in London.

**Jerome, Saint** (about 340-420), was a great Biblical scholar of the Christian church. His Latin edition of the Bible, known as the *Vulgate*, served as the authorized translation of the Bible in the Roman Catholic Church for hundreds of years.



Oil painting on wood panel (early 1400s) by Jan van Eyck, Detroit Institute of Arts, Michigan, U.S.A.

**Saint Jerome** was a great Biblical scholar of the early church. A legend tells how he removed a thorn from a lion's paw. Many paintings show Jerome in his study with the lion at his feet.

Jerome produced many important religious works besides his Bible translation. In *Against Jovinian* (393-395), he defended chastity and the monastic life. In *Famous Men* (393-395), he listed 135 Christian authors and discussed their works. Jerome also wrote vigorously against the ideas of the British monk Pelagius and the early Christian philosopher Origen.

Jerome was born in Stridon in what is now Croatia. As a boy, he studied grammar, rhetoric, and the liberal arts in Rome. Jerome travelled to the Near East in the early 370's, staying for a time at Antioch, Syria (now Turkey). In the 370's, he lived for several years as a monk in the Syrian Desert. He then returned to Antioch and was ordained a priest there in 379.

In 382, Jerome returned to Rome, where he became secretary to Pope Damasus I. He left Rome after the pope's death in 384 and settled in Bethlehem in 386. There, he and Saint Paula founded monasteries for men and women and established a resthouse for travellers. Jerome's feast day is September 30.

See also Bible (The first translations); *Vulgate*.

**Jersey** is the largest of the Channel Islands. It is the southernmost island of the group and lies off the west coast of Normandy—a region of France—in the English Channel. It has an area of about 115 square kilometres and a population of about 80,000. For location, see United Kingdom (terrain map).

The island is known as the original home of purebred Jersey cattle. Farmers on the island grow early potatoes, tomatoes, and other vegetables. Jersey's fine sandy beaches make it a popular holiday resort. The island has its own legislature. The chief executive is a lieutenant governor appointed by the British ruler. The capital of Jersey is St. Helier, which is on the south coast of the island.

See also Channel Islands.

**Jersey.** See Cattle (Dairy cattle).

**Jersey** is a plain, knitted fabric without *ribs* (ridges). It may be smooth or somewhat *napped* (hairy). Jersey was originally made from wool, but now it is made from a variety of fibres. It was first used to make clothing for fishing crews on the island of Jersey in the English Channel. Today, jersey is a common fabric for dresses, suits, lingerie, and sportswear.

See also Textile (Knitted fabrics).

**Jersey Lily.** See Langtry, Lillie.



Jerusalem, holy to three religions, includes the walled Old City district, *front*, and modern sections, *rear*. The Dome of the Rock, sacred to Muslims, stands near the wall.

## Jerusalem

**Jerusalem** is a holy city of Jews, Christians, and Muslims. It is the capital of Israel. In the Arab-Israeli war of 1948, Jerusalem became divided between Israel and the neighbouring Arab country of Jordan. Israel held West Jerusalem, and Jordan controlled East Jerusalem. Israel won East Jerusalem in the brief Arab-Israeli war of 1967, and combined it with the western section. West Jerusalem is the modern part of the city. East Jerusalem includes the walled Old City, the site of many ancient holy places.

Jews consider Jerusalem a holy city because it was their political and religious centre in Biblical times. About 1000 B.C., King David made Jerusalem the capital of the united Israelite tribes. David's son, King Solomon, built the first Temple of the Jews in the city. Christians consider Jerusalem holy because Jesus was crucified there, and many events in His life took place in the city. Muslims believe that Muhammad, the founder of their religion, Islam, rose to heaven from Jerusalem. It is their third holiest city, after Mecca and Medina in Saudi Arabia.

About three-fourths of Jerusalem's people are Jews. They live in West Jerusalem, where some Christians and Muslims also live. Almost all the people of East Jerusalem are Arabs. About four-fifths of them are Muslims. Most of the others are Catholics of the Byzantine Rite or members of the Greek Orthodox or Roman Catholic churches.

Jerusalem is a city of three Sabbaths—Friday (Muslim), Saturday (Jewish), and Sunday (Christian). Stores and businesses in Jerusalem may be closed on any of these three days. After the Jewish Sabbath begins on Friday night, a large portion of West Jerusalem closes down and public transport stops. Most of the Jews observe the Sabbath. But on Friday night, hundreds of other Jews go to East Jerusalem, where cafes and other places of entertainment are open. At such times, the Arabs of East Jerusalem and the Jews generally stay in separate groups.

Many of the signs in Jerusalem's streets and shop windows are in three languages—Hebrew, the language of the Jews; Arabic, the language of the Arabs; and English, a second language of many Jews and Arabs.

### Facts in brief

**Population:** 424,400.

**Area:** 107 km<sup>2</sup>.

**Altitude:** 732 m above sea level.

**Climate:** *Average temperature*—January, 13° C; July, 24° C. *Average annual precipitation* (rainfall, melted snow, and other forms of moisture)—56 cm.

**Government:** *Chief executive*—mayor; elected by the city legislature to a 4-year term. *Legislature*—Municipal Council of 21 members; elected by the people to 4-year terms.



The people of Jerusalem wear a wide variety of clothing. Most of the Jews wear modern Western suits or dresses. Some Jews dress in the extremely Orthodox style of eastern Europe. The men wear long black coats and fur-brimmed hats, and have dangling side curls. The women wear long dark coats and dresses, and black stockings. Jews from other Asian countries or northern Africa have their own clothing styles. Many of these people, called Oriental Jews, look like Arabs. Most of the Arab men wear Western-style clothing. Many Arab women wear beautifully embroidered gowns, and some cover their faces with veils. Christian priests, nuns, and monks wear the various clothing of their own church, convent, or monastery.

West Jerusalem

About half the Jews of West Jerusalem came to Israel after the nation was established in 1948. Most of the others, called *sabras*, were born in Israel. Their nickname comes from the Hebrew word for cactus fruit, which is tough and prickly outside but sweet and tender inside. Most of the immigrants—especially those from Western countries—and the *sabras* strongly favour modernizing Jerusalem with up-to-date buildings, industries, and ways of life.

A small group of extremely religious Jews believes that only a life of prayer and religious study is proper for the holy city. They follow ways of life that developed in Polish and Russian communities hundreds of years ago. These ultra-Orthodox Jews speak Yiddish instead of Hebrew, though their religious services are conducted

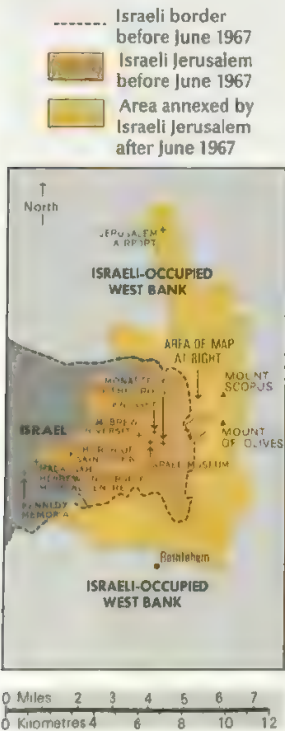
in Hebrew. The men wear the traditional black clothing and side curls. After the women marry, they shave their heads and wear wigs. They do this to follow old religious laws that call for extreme modesty among women. Some of the ultra-Orthodox do not even recognize the nation of Israel. They believe that only the Messiah, whom God will send, can establish such a nation.

The ultra-Orthodox Jews consider the Westernized Jews ungodly for not following the strict religious laws. For example, if a Jew breaks the Sabbath tradition by driving a car into one of their neighbourhoods, they might throw stones and spit at it. Sometimes they fight with police while protesting against such "immodest" customs as men and women swimming together in a public pool. Most of Jerusalem's Jews dislike such extreme opposition to modern ways of life.

West Jerusalem has modern factories that produce chemicals, clothing, leather goods, machinery, and plastics. There are also printing, diamond-polishing, and food-processing industries in West Jerusalem. Older handicraft industries include embroidery, pottery, silverware, and woodwork.

The people of West Jerusalem live in concrete housing estates and in traditional homes of pinkish stone from nearby quarries. Many public buildings of boldly modern design were built during the 1960's. They include the beautiful new campus of Hebrew University, which has about 17,000 students and is Israel's second largest university. Only Tel Aviv University is larger. Near the Hebrew University are the home of the *Knesset* (parliament), which glows in yellow floodlights at night,

Jerusalem



The Old City



- Aqsa Mosque ..... 9  
Church of the Holy Sepulchre ..... 12  
David's Tower ..... 14  
Dome of the Rock ..... 8  
Garden of Gethsemane ..... 5  
Islamic Museum ..... 10  
King David Hotel ..... 16  
Monastery of the Flagellation ..... 7  
Mosque of Omar ..... 13  
Palestine Archaeological Museum ..... 3  
St. George's Cathedral ..... 2  
Solomon's Throne ..... 6  
The Cenacle and King David's Tomb ..... 17  
The Chadel ..... 15  
Tomb of the Virgin ..... 4  
Tombs of the Kings ..... 1  
Western Wall (Wailing Wall) ..... 11



and the blue-lighted buildings of the Israel Museum. To the southwest rises the huge Hadassah-Hebrew University Medical Centre, with its famous stained-glass windows by the artist Marc Chagall.

West Jerusalem also has ancient holy places. The most important are in a building on Mount Zion. They are King David's Tomb and the Cenacle, a chamber that is believed to be the site of the Last Supper of Jesus Christ.

### East Jerusalem

East Jerusalem covers an area that is almost twice as large as West Jerusalem, but it has only about three-fourths as many people. It includes the oldest district of Jerusalem—the Old City—which lies on the site of ancient Jerusalem. Several Jordanian villages near the Old City have been part of East Jerusalem since Israel's military victory of 1967.

East Jerusalem was the only Arab territory taken during the 1967 war that the Israeli government officially declared a part of Israel immediately after the war. The people of East Jerusalem were granted all rights as Israeli citizens. For example, everyone there who is at least 18 years old can vote in Israeli elections.

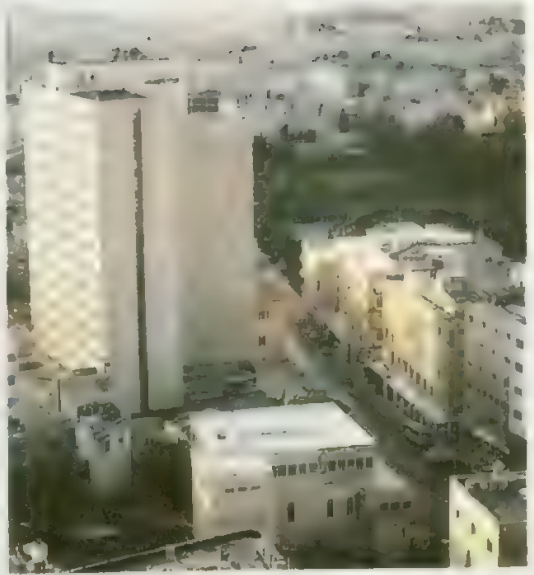
The Old City has always been the heart of East Jerusalem. It is surrounded by stone walls almost 12 metres high and 4 kilometres long. Most of the walls were built during the 1500's, but parts of them are much older. Within the walls there are four neighbourhoods—the Armenian, Christian, Jewish, and Muslim quarters. Jordan did not allow Jews to live in the Old City. In 1967, the Israelis found the Jewish Quarter largely in ruins in the aftermath of the 1948 war. Israel has since rebuilt the district, making it an attractive neighbourhood for Jewish families.

Life along the narrow, cobblestone lanes that wind through the Old City has remained very much the same for hundreds of years. There are many handicraft workshops but no modern industries. The busiest streets are the *souks* (markets), which have small, windowless shops that sell pottery, jewellery, and souvenirs to tourists. Village women selling farm products often sit in the dusty streets. Most of the streets are too narrow for cars, and donkeys or camels are used to carry heavy loads.

Many changes have taken place in the Old City since the 1967 war. In the past, the Old City had a few schools and no kindergartens. It also had a poor sanitation system and water supply.

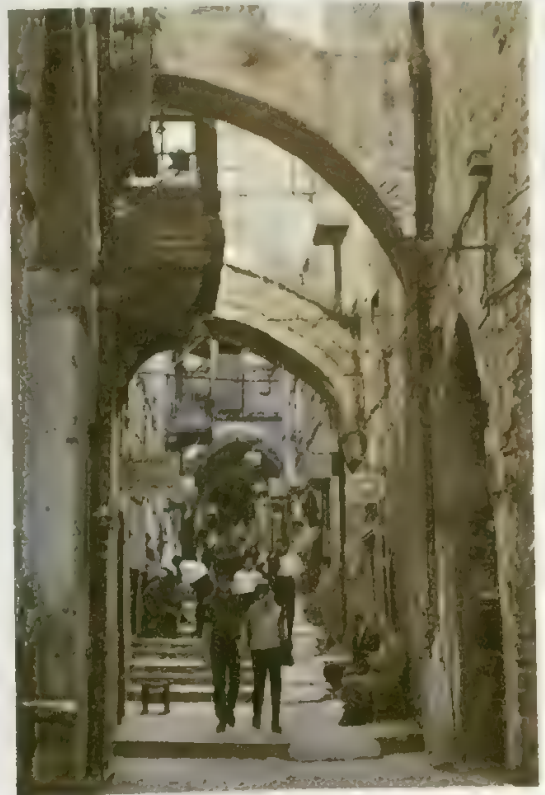
Soon after the 1967 war, Israel began to expand West Jerusalem's public services into East Jerusalem. These services included modern water and power systems, refuse collection, and social welfare programmes. The education system in the Old City was also improved. Israel also started to build roads between East and West Jerusalem. The Israelis built light industries in East Jerusalem to improve the economy there. New housing, parks, playgrounds, schools, and youth clubs were also built in East Jerusalem.

The Israeli takeover angered Arabs in East Jerusalem. But in spite of some initial tensions, the situation soon improved. Many Arabs cooperated with the Israelis, and there were far fewer problems than had been expected. Almost all city employees of East Jerusalem took new



**West Jerusalem**, inhabited mainly by the city's Jewish population, is the newer section of the city.

**East Jerusalem** is the home of most of the city's Arabs. In that section's Old City, Arab shops line the narrow streets.





## Jerusalem at the time of Jesus Christ

No one knows exactly what Jerusalem looked like during the lifetime of Jesus Christ. This exclusive *World Book* illustration is based on research by a scholar dealing with how the city may have appeared at that time. The index on the right identifies the points of interest numbered on the illustration. The Temple (13), which was the largest building in the city, stood on a hill in eastern Jerusalem. West and north of the Temple lay a small area of shops, stores, and houses. The First Wall (24) almost encircled southern Jerusalem. A shorter, jagged wall cut across this area and separated sections called the Lower City and the Upper City. The crowded Lower City, east of the jagged wall, was the commercial and industrial centre of Jerusalem and the chief residential area of its poor. Most of Jerusalem's wealthy people lived in the Upper City, west of the jagged wall. There, King Herod's Palace (35) and many large homes had spacious courtyards with gardens and pools.

1. Road to Galilee
2. Wood Market and Stores
3. North Gate
4. Second Wall
5. Hill of Calvary (Golgotha)
6. Stores
7. Barracks
8. Market Halls
9. Fortress of Antonia
10. Jannaeus Monument
11. Sheep Pool and Market



The distance from the North Gate (3) to the Gate of Essenes (28) was about 2 kilometres

North

This illustration is based on a model of the ancient Holy City that was built by the Holyland Hotel in Jerusalem. Plans for the model were developed by Michael Avi Yonah, Professor of Archaeology of the Hebrew University of Jerusalem, from the best archaeological, Biblical, and historical information available. The model was built from architectural drawings by his wife, Eva Avi Yonah.

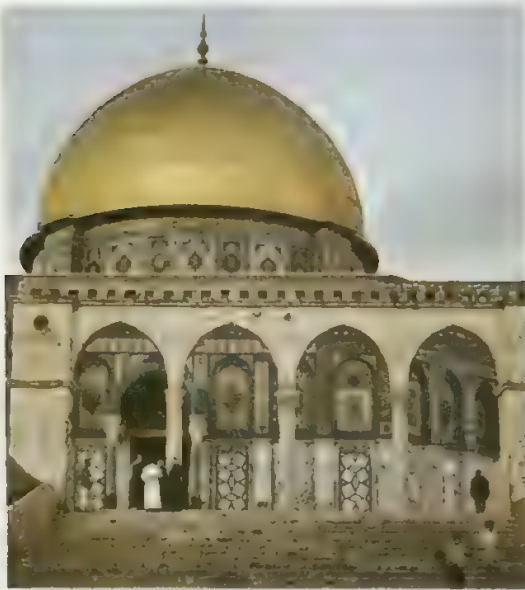


- |                          |                           |  |                         |
|--------------------------|---------------------------|--|-------------------------|
| 12. Tyropoeon Valley     | 23. Kidron Valley         | 34. Serpents' Pool                         | 44. Hananiah's Palace   |
| 13. Temple               | 24. First Wall            | 35. Herod's Palace                         | 45. Hippicus Tower      |
| 14. Mount of Olives      | 25. Synagogue of Freedmen | 36. Upper Market                           | 46. Mariamme Tower      |
| 15. Garden of Gethsemane | 26. Pool of Siloam        | 37. Theatre                                | 47. Barracks            |
| 16. Road to Jericho      | 27. Rose Gardens          | 38. Hippodrome                             | 48. Phasael Tower       |
| 17. Absalom's Tomb†      | 28. Gate of Essenes       | 39. Robinson's Arch*                       | 49. Towers Pool         |
| 18. Bene Hezir Tomb      | 29. Road to Judean Desert | 40. Site of Western Wall<br>(Wailing Wall) | 50. Hyrcanus Monument   |
| 19. Zechariah's Tomb†    | 30. Valley of Hinnom      | 41. Wilson's Arch*                         | 51. Road to Gaza        |
| 20. Herod's Basilica     | 31. King David's Tomb†    | 42. Town Hall                              | 52. Road to Bethlehem   |
| 21. Huldah Gates         | 32. Dyers' Quarter        | 43. Hasmonean Palace                       | 53. Herod's Family Tomb |
| 22. Huldah Monument      |                           |  |                         |

\*Discovered and named in the 1800's  
†So called





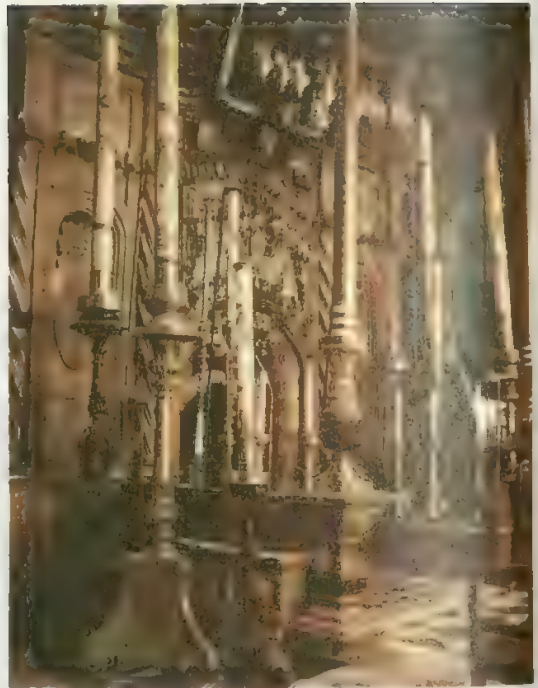


**The Dome of the Rock**, perhaps the most beautiful building in Jerusalem, is the city's holiest Muslim shrine. It covers the spot from which Muhammad is believed to have risen to heaven.

jobs under the new administration. Arab and Israeli children played together in soccer and basketball teams, and combined their talents in a new city orchestra. Many Arab children and adults began to learn Hebrew, and some students from East Jerusalem started to go to Hebrew University.



**The Western Wall** in Jerusalem was a part of the Jews' holy Temple during Biblical times. Worshippers still visit the shrine to pray.



**The Church of the Holy Sepulchre** is believed to stand on the hill of Calvary, where Jesus Christ was crucified and buried. The building was completed in A.D. 1048.

### Holy places

The Israeli government opened the gates of the Old City's walls so that anyone could enter freely. This action by Israel had great importance because Jerusalem's holiest places of the three religions are in the Old City. They are the Western Wall (Jewish), the Church of the Holy Sepulchre (Christian), and the Dome of the Rock (Muslim). Israel established new laws and regulations designed to protect these and other holy places from damage. It also allowed each religious community to supervise its own holy sites.

**The Western Wall**, or Wailing Wall, on Mount Moriah, is all that remains of the Jews' holy Temple of Biblical times. The Temple was destroyed and rebuilt several times. Roman soldiers last destroyed it in A.D. 70. The Wailing Wall, which is 50 metres long, was the western wall of the Temple courtyard. It has long been a symbol of Jewish faith and unity. It takes its name from the sorrowful prayers said there in mourning for the destruction of the Temple. According to legend, the wall itself weeps over the destruction.

**The Church of the Holy Sepulchre** is believed to stand on the hill of Calvary, or Golgotha, where Jesus was crucified and buried. Several Christian faiths share the church. It rises at the end of the *Via Dolorosa* (Way of Sorrows), which is believed to be the route over which Jesus carried His cross to Calvary. On Good Friday, a huge crowd of people retraces the route to the

church, chanting prayers and reading from the Gospels.

**The Dome of the Rock** stands near the Western Wall. This golden-domed building has been called the most beautiful structure in Jerusalem. It was built over the rock from which, according to Muslim belief, Muhammad rose to heaven with the angel Gabriel and spoke with God. With God's blessing, Muhammad returned from his night's journey to spread Islam, the new religion. Jews believe that on this rock Abraham, the leader of the ancient Hebrews, prepared to sacrifice his son, Isaac, at God's command.

## History

**Ancient times.** The prehistoric beginnings of what is now Jerusalem date back more than 4,000 years. The city's chief historical importance began about 1000 B.C., when King David captured it from a people called the Jebusites. He made it the capital of the united Israelite tribes. David's son, King Solomon, built a magnificent Temple to *Yahweh* (Jehovah), as well as palaces for himself and his many wives. By 900 B.C., the kingdom had split in two. Jerusalem remained the capital of Judah, the southern kingdom.

In 587 or 586 B.C., the Babylonians conquered Judah and destroyed the Temple in Jerusalem. They took many Jews to Babylonia as captives. In 538 B.C., King Cyrus of Persia allowed the Jews to return to Jerusalem after he conquered Babylonia. The Jews then rebuilt the Temple.

By 400 B.C., control of Jerusalem had passed to the priests of the Temple. They made the city a thriving religious centre. The power of the priests was upheld by the various kings that followed the Persians as rulers of Judah. These kings were Alexander the Great of Macedonia, the Ptolemies of Egypt, and the Seleucids of Syria. But King Antiochus IV (called Epiphanes) of Syria tried to force Greek ways of life on the people of Jerusalem. He was frightened by Rome's growing power, and sought to stiffen resistance against the Romans. In 168 or 167 B.C., he built an altar to Zeus, the major Greek god, in the Temple and tried to force the Jews to give up their religion. The Jews revolted, led by the priestly Hasmonean family. In 165 B.C., the Jews recaptured the Temple. The leader of the Jews, Judah Maccabee, rededicated it to God. The Jews won complete independence in 142 B.C.

Jerusalem soon became weakened by a long struggle for power between two groups, the Pharisees and the Sadducees. The two groups disagreed violently over Jewish law and other religious matters, and fighting sometimes broke out. In 63 B.C., Jerusalem fell to Roman soldiers. In 54 B.C., the Roman general Crassus stole the Temple's treasures. The Romans named Herod (called the Great) king of the Jews, and he took control of Jerusalem in 37 B.C. Herod started a huge building programme, and began rebuilding the Temple to make it more magnificent.

**Roman rule.** Beginning in A.D. 6, Judea—as the Romans called Judah—had no king. Jerusalem was ruled by the Roman *procurator* (administrator). The Jews rioted frequently against the Romans. Many riots were led by those who claimed to be the Messiah and announced that the Kingdom of God was coming. The Romans arrested most of these leaders and crucified them. After Jesus of Nazareth arrived in Jerusalem, He declared the

coming of the Kingdom of God. His followers believed He was the Messiah. He was accused of treason and brought before Pontius Pilate, the procurator, who sentenced Him to be crucified.

Roman rule later became crueler, and rioting by Jews increased. A major revolt began in A.D. 66. The Jews seized control of Jerusalem and held it until 70. That year, the Romans burned down the Temple. Only the Temple's western wall remained standing. Much of Jerusalem lay in ruins.

The Jews recaptured Jerusalem in 132, but the Roman Emperor Hadrian drove them out three years later. Hadrian tried to end all Jewish hope of regaining Jerusalem. He renamed the city Aelia Capitolina and built temples to Roman gods, including one to Jupiter on the site of the Jewish Temple. Hadrian even prohibited Jews from visiting or living in Jerusalem. But the city's importance as their spiritual centre continued. The holy writings of the Jews reminded them that one day God would return them to *Zion*, a name they used for Jerusalem.

By the 200's, the ban against Jews visiting the city was no longer strictly enforced. During the early 300's, Emperor Constantine I (the Great) made Christianity legal in the Roman Empire. He built the Church of the Holy Sepulchre in Jerusalem, and gave the city its old name again. In 395, Jerusalem became part of the Byzantine Empire, the eastern half of the old Roman Empire.

**Muslim rule.** During the early 600's, control of Jerusalem changed three times. First, Persian troops captured Jerusalem. The Byzantines regained the city, but soon lost it again to Muslim Arabs. Jerusalem was holy to the Muslims, as well as to the Jews and the Christians. In 691, the Muslims built the Dome of the Rock over the rock from which they believed Muhammad rose to heaven. During the 900's and 1000's, a number of Muslim groups fought for control of Jerusalem.

In 1099, a military expedition of European Christians captured Jerusalem. These Christians, called the *crusaders*, killed Muslims and Jews alike, and established the Kingdom of Jerusalem (see *Crusades*). The Muslims recaptured the city in 1187.

Ottoman Turks took control of Jerusalem in 1517. At first, under Ottoman Turkish rule, most of Jerusalem's people were Muslims, and Christians greatly outnumbered Jews. But increasing numbers of Jews immigrated to the city, and by the mid-1800's, Jews had become the majority group. They began building new districts west of the walled Old City.

**British rule.** In December 1917, during World War I, British troops captured Jerusalem from the Turks. A month earlier, the British government had issued the Balfour Declaration, which supported the idea of a national home for Jews in Palestine, the Holy Land. In 1920, the victorious Allies made Palestine a *mandated territory* to be governed by Great Britain in preparation for self-government (see *Mandated territory*). The League of Nations approved the mandate and the Balfour Declaration in 1922.

Jewish immigration to Jerusalem increased during the 1920's and 1930's as the Zionist movement gained strength (see *Zionism*). The city's suburbs grew rapidly. The British administration of Palestine was centred on Jerusalem, and many new buildings were erected in the city.



Anti-Zionist feelings developed among the Palestine Arabs, who wanted to create an Arab Palestine. By the 1930's, severe anti-Jewish riots had started in Jerusalem. In 1947, the British asked the United Nations (UN) to find a way to end the bitter struggle. Later that year, the UN voted to end British control and divide Palestine between the Arabs and the Jews. Jerusalem would be an international city under the control of the UN.

**A divided city.** In May 1948, British control ended and Israel was established in spite of Arab opposition to the UN plan. Arab armies immediately attacked the new nation. The Jewish Quarter in Jerusalem's Old City soon fell under heavy shelling. But Israeli forces stopped the Arab advance in bitter fighting in the western Jewish suburbs and on Mount Scopus. By the end of 1948, Israeli soldiers held West Jerusalem, and Jordanian troops controlled East Jerusalem. Barbed wire and minefields divided the city.

West Jerusalem became the capital of Israel. But most countries that had diplomatic relations with Israel did not recognize the capital, because of the UN plan to make Jerusalem an international city. The loss of the Old City, which contains the Western Wall and other sacred Jewish shrines, was a bitter disappointment to the Israelis.

**Israeli control.** War again broke out between the Arabs and Israelis in June 1967. After Jordanian artillery began shelling West Jerusalem, Israeli tanks surrounded the Old City in a raging battle. Jewish troops cleared house after house there in bitter street fighting. The Old City fell to Israel in three days of the Six-Day War, with little damage to the holy places. Huge crowds of joyful Jews soon entered the Old City for the first time in 19 years to pray at the Western Wall.

Israel announced that it intended to keep all Jerusalem. The Israelis quickly extended the municipal boundaries of Jerusalem and made the Old City and nearby villages an official part of Israeli Jerusalem. But other countries did not recognize Israeli control. Since 1967, the Israelis have considered the entire city—rather than just West Jerusalem—to be Israel's capital. In 1980, the Israeli government passed a law that officially stated that the entire city is the capital.

**Related articles in World Book include:**

Crusades	Judea
Cyrus the Great	Mount of Olives
David	Palestine
Gethsemane	Saladin
Israel	Solomon
Jesus Christ	Western Wall
Jews	Zion
Judah Maccabee	Zionism

#### Outline

- I. West Jerusalem
- II. East Jerusalem
- III. Holy places
  - A. The Western Wall
  - B. The Church of the Holy Sepulchre
  - C. The Dome of the Rock
- IV. History
  - A. Ancient times
  - B. Roman rule
  - C. Muslim rule
  - D. British rule
  - E. A divided city
  - F. Israeli control

#### Questions

- How does East Jerusalem compare with West Jerusalem in area and population?
- When did Israel gain control of East Jerusalem?
- Which three religions consider Jerusalem their holy city? Why?
- Why did the United Nations decide to make Jerusalem an international city in 1948?
- What is the significance of the Church of the Holy Sepulchre? The Dome of the Rock? The Western Wall?
- What changes took place in the Old City after the 1967 Arab-Israeli war?
- What are West Jerusalem's most important manufacturing industries?
- How did the Roman Emperor Hadrian try to eliminate Jewish influence in Jerusalem?
- What steps has Israel taken to protect Jerusalem's holy places?
- Jerusalem artichoke** is a plant native to North America, and cultivated in both the New World and the Old World. It is not an artichoke, but is instead related to sunflowers. The plant gets that part of its name from the potato-like *tubers* it produces underground. These tubers taste somewhat like artichokes. In Europe, the tubers of Jerusalem artichokes are eaten raw as a vegetable, or they are made into soup. In North America, gardeners pickle them. The tubers are also widely used as food for livestock, and in the production of *fructose* (also called *levulose*), a type of sugar.
- Jerusalem artichokes bear yellow flowers and grow about 3.5 metres tall. The plants grow quickly from tubers left in the earth and can become a serious weed pest.

**Scientific classification.** The Jerusalem artichoke belongs to the daisy family, Compositae (Asteraceae). It is *Helianthus tuberosus*.

**Jervis Bay** is an inlet on the coast of New South Wales, Australia. The Australian federal government owns the bay and an area of 73 square kilometres around it. The Australian navy uses the bay as an anchorage for its vessels. In 1915, New South Wales gave control of the area to the federal government as a port for the Australian Capital Territory.



**The Jerusalem artichoke** is related to the sunflower. Its potato-like *tubers* (underground stems) are often pickled or eaten as a table vegetable. This plant produces yellow flowers.

**Jessamine.** See Gelsemium.

**Jester** was a person whose duty it was to amuse the family of a king or nobleman. The jester was sometimes also called the *court fool*. He performed antics very much like those of today's clown. Watching him, a king might easily forget the troubles of his kingdom. The jester wore a chequered costume of many colours. From his close-fitting cap, and sometimes from his long, pointed shoes, dangled bells that tinkled as the jester danced.

It is not known when jesters first appeared. There may have been jesters in Britain during the time of the Saxons. We do know that licenses were issued to jesters in the 1600's. Before that, a history of William the Conqueror (who lived in the 1000's) names his court fool, Goles. Many kings who followed William had jesters. Henry VIII's jester, Will Somers, was a gift from Cardinal Wolsey. The famous painter Holbein made a portrait of Saint Thomas More's jester.

The court jester enjoyed an unusual position with his employers. He was almost a member of the family, taking part in private gatherings, sharing family secrets, and playing with the children. It is easy to understand how Shakespeare's Hamlet felt when the skull of his father's jester, Yorick, was uncovered by gravediggers. Hamlet describes him as "a fellow of infinite jest, of most excellent fancy." Most jesters were clever. Some are believed to have given their kings advice.

**Jesuits** are members of a Roman Catholic religious order of men. The official name of the order, which was founded by Saint Ignatius Loyola in 1534, is the Society of Jesus (SJ).

The Jesuits are especially noted for their work in education. The order operates more than 4,000 schools, colleges, and universities throughout the world. There are Jesuit universities and colleges in over 40 countries, including Australia, Brazil, Ireland, India, Malaysia, the Philippines, Singapore, Spain, the United States, and the United Kingdom.

The order has produced many important explorers, missionaries, scientists, theologians, and writers. For example, Saint Francis Xavier, a Spanish Jesuit, converted thousands of people in the Far East during the 1500's. Jacques Marquette, a French Jesuit, helped explore the Mississippi River in the late 1600's. Gerard Manley Hopkins, an English Jesuit, ranks among the leading poets of the 1800's. Pierre Teilhard de Chardin, a French Jesuit, became a leading *palaeontologist* (expert on fossils) during the 1900's.

Many Jesuits have been *canonized* (declared saints) by the Roman Catholic Church. The best-known Jesuit saints include Robert Bellarmine, Peter Canisius, and Isaac Jogues.

**Membership and training.** Immediately after entering the order, a Jesuit begins two years of spiritual training. During this period he is called a *novice*. After training, he takes vows of poverty and of obedience to his superiors. He also vows to stay *celibate* (unmarried).

The Jesuits have three groups of members: (1) temporal coadjutors (brothers); (2) spiritual coadjutors; and (3) the solemnly professed. The brothers are full members of the order but are not ordained to the priesthood. Spiritual coadjutors and the professed are priests. The professed take a vow of special obedience to the pope

in addition to taking vows of celibacy, obedience, and poverty. They also vow never to seek or accept any religious honour or office unless ordered to do so. In addition, the professed promise never to weaken the vow of poverty in the order.

Jesuits must study for many years before becoming spiritual coadjutors or professed. This period of study, which lasts from 10 to 12 years for a school leaver, provides both spiritual and academic training. A Jesuit's superiors determine if he is qualified for the rank of professed. They base their decision on the individual's record in his studies, but especially on his qualities of spiritual leadership.

**Organization.** The Jesuits are headed by a *superior general*, who lives in Rome. He has broad powers to make decisions that affect the entire order. Jesuits live in about 100 countries. For administrative purposes, the order is divided into regions called *provinces*, *vice-provinces*, and *mission territories*. An official called a *provincial* supervises each province and vice-province. Provinces that share a common language or cultural background are grouped together into *assistancies*. An *assistant* serves as an adviser to the superior general on matters involving each assistance. A local superior appointed by a provincial or by the superior general governs individual communities of Jesuits within each province or mission territory.

The superior general is elected for life by a congregation made up of assistants, provincials, and elected delegates from the order. The congregation also elects several principal assistants to the superior general. The superior general appoints provincials. He also appoints *superiors*, who supervise local groups of Jesuits. Most provincials and superiors serve six-year terms.

**History.** Saint Ignatius Loyola and six companions formed the Society of Jesus in Paris. Pope Paul III formally approved the order in 1540. He originally limited the Jesuits to 60 members. But in 1544, the pope authorized the order to increase its membership without limit. Ignatius wrote the order's *constitutions* (sets of rules), which have become models for hundreds of other Roman Catholic religious communities.

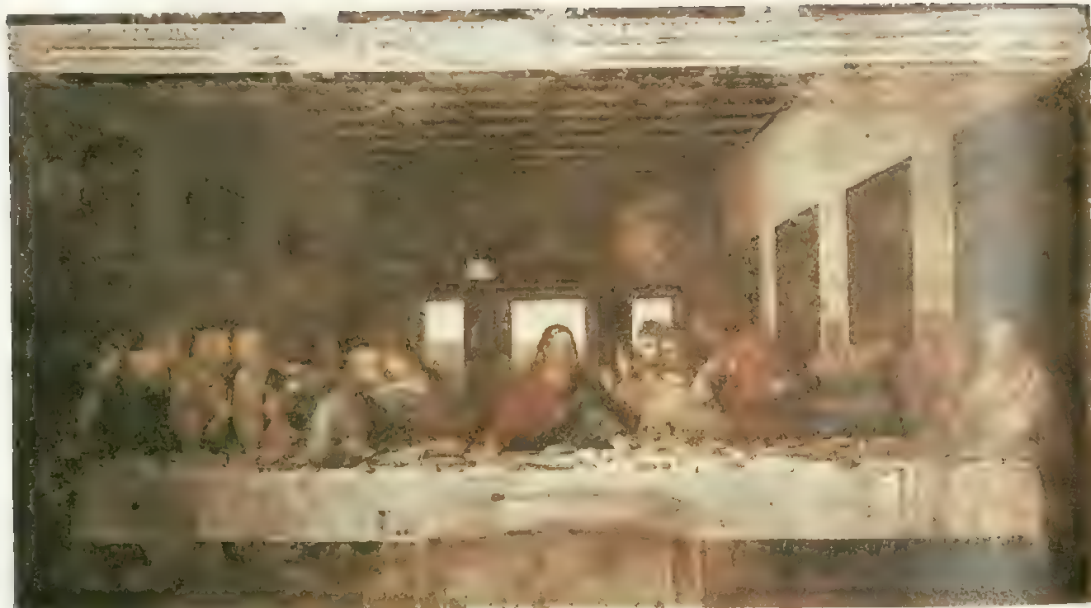
Under the leadership of Ignatius, the Jesuits grew to almost 1,000 members. By the time he died in 1556, the order had become firmly established in Europe, primarily through its activities in education. The Jesuits also conducted widespread missionary work in Africa, Asia, and North and South America. The order played a major role in the church's self-renewal movement called the Counter Reformation (see *Roman Catholic Church* [The Counter Reformation]).

The Jesuits aroused opposition as their membership and influence increased. In France, for example, the Jesuits came into conflict with a powerful religious movement called Jansenism (see Jansen, Cornelius). Finally, in 1773, Pope Clement XIV banned the order. Pope Pius VII removed the ban in 1814. See *Roman Catholic Church* (Suppression of the Jesuits).

Since 1814, the Jesuits have steadily increased their membership. Today, about 25 per cent of the order's members come from North America, where the influence has been especially significant.

Each Jesuit mentioned in this article has a biography in *World Book*.





Santa Maria delle Grazie, Milan, Italy

**The Last Supper** was the final meal that Jesus shared with His 12 apostles. This painting shows Jesus, seated in the centre, just after He had told the apostles that one of them would betray Him. The famous Italian artist Leonardo da Vinci finished painting the scene on a monastery wall about 1497. The picture began to peel soon after he completed it and is in poor condition today.

## Jesus Christ

**Jesus Christ** was one of the world's greatest religious leaders. The Christian religion was founded on His life and teachings. Most Christians believe that He is the Son of God who was sent to earth to save humanity.

Even many people who are not Christians believe that Jesus was a great and wise teacher. Muslims believe that Jesus was one of a succession of prophets who were sent by God to guide mankind.

The personal name of Jesus Christ was Jesus. The term *Christ* comes from the Greek word *christos*. The Greek word is a translation of the Hebrew word *mesiah*, meaning the anointed one.

**Records of the life of Jesus.** Four short books of the New Testament tell nearly all we know of the life of Jesus. These books are the gospels of Matthew, Mark, Luke, and John. The word *gospel* means good news. Christian tradition attributes the gospels to men who followed Jesus during His life, or after His death. Today, many scholars doubt that any of the writers of the gospels knew Jesus during His lifetime. They also doubt that we know the actual names of the writers.

Other New Testament writings include the *Epistles* (letters) of Paul and the Acts of the Apostles. They tell us about the early followers of Jesus after His death and include information about Jesus. Non-Christian records of Jesus and the times in which He lived are found in the writings of Josephus, who wrote about A.D. 90; Pliny the Younger, who wrote about 112; Tacitus, who wrote about 115; and Suetonius, who wrote about 120.

**Muslim beliefs about Jesus.** Muslims confirm some of the Christian beliefs about Jesus, but deny others. For

example, they believe in the virgin birth, and that Jesus healed the sick, cured the blind, and raised the dead to life. However, they deny the crucifixion, most believing that Jesus was miraculously taken up to God without having to suffer a natural death. They also deny that Jesus is the Son of God, and stress that he is purely human. Many Muslims believe that he will return to earth towards the end of time, in the events leading up to the end of the world and the Day of Judgment.

### Early life

**Birth.** Jesus was born during the lifetime of Herod the Great, who ruled Palestine. Herod died in 4 or 1 B.C., so Jesus must have been born no later than the year of Herod's death. No one knows what time of year Jesus was born. The day of His birth was first celebrated on December 25 in the early 300's.

The gospels of Matthew and Luke record that Jesus was born in Bethlehem, a town in Judea. His mother was the Virgin Mary. Mary's husband was Joseph. He was brought up in Nazareth, a town in Galilee. In other details, the two accounts differ greatly.

According to Matthew, Mary was *betrothed* (engaged to be married) to Joseph. When Joseph discovered that Mary was pregnant, an angel appeared to him in a dream. The angel told him that the child was of the Holy Spirit. After Jesus was born, wise men travelled from the East to see the newborn Messiah. They first asked for Him at Herod's court in Jerusalem. Then they followed the light of a star to Bethlehem. They found Jesus and gave Him gifts of gold, frankincense, and myrrh. Herod had told them to return after they knew where the infant was. But they had been warned not to go to Herod, and so they took a different route home. Herod became

angry. He feared this new "King of the Jews." He ordered the deaths of all boys in Bethlehem 2 years old and younger. An angel had appeared to Joseph in another dream and warned him about this decree. Joseph fled with Mary and Jesus to Egypt. After Herod died, they returned and settled in the town of Nazareth in Galilee.

According to Luke, Mary and Joseph originally lived in Nazareth. The angel Gabriel visited Mary and announced that her child would be the Son of God and the Messiah that was promised in the Hebrew Bible. This visit is known as the *annunciation*. Sometime before Jesus was born, Mary and Joseph went to Bethlehem to record their names in a *census* (count of the people). They found shelter in a stable. Jesus was born there and Mary made a cradle for Him in a manger. Shepherds near Bethlehem saw angels in the sky. The angels sang, "Glory to God in the highest and on earth peace, good will toward men" (Luke 2:14). Some translations of the Bible say "to men of good will." After Mary and Joseph had done everything commanded by Jewish law, they returned with Jesus to Nazareth.

**Childhood.** There is only one story in the Gospels about Jesus' childhood. Luke says that when Jesus was 12 years old, He went with Mary and Joseph to Jerusalem for the feast of Passover. He sat among the scholars in the Temple and amazed them with His knowledge of religion. The only other remark in Luke about Jesus' childhood is that "the Child grew, and waxed strong in



*Christ Disputing with the Elders* (about 1309), a fresco by Giotto in the Scrovegni, or Arena, Chapel, Padua, Italy

Jesus' childhood was probably spent in Nazareth. At the age of 12, He went to Jerusalem with Joseph and Mary to celebrate the feast of Passover. There He met with scholars in the Temple, above, and amazed them with His knowledge of religion.



*The Adoration of the Shepherds* (1649), an oil painting on canvas by Rembrandt; Alte Pinakothek, Munich, Germany

The birth of Jesus, called the *Nativity*, took place in a stable in Bethlehem, a small town in Judea. This painting shows Mary and Joseph watching over Jesus while several shepherds worship Him.



*The Baptism of Christ* (about 1450), an oil and tempera painting on wood by Piero della Francesca; the National Gallery, London

Jesus was baptized by John the Baptist with water from the River Jordan. In this painting, the three angels on the left watch the baptism while the Holy Spirit, in the form of a dove, appears above Jesus' head. A man behind John prepares to be baptized.





**Jesus' life centred in Judea and Galilee.** According to Christian tradition, Jesus was born in Bethlehem and raised in Nazareth. He was crucified outside Jerusalem.

spirit, filled with wisdom: and the grace of God was upon Him" (Luke 2:40). Jesus probably grew up in Nazareth and helped Joseph in his carpentry work.

### Public life

Jesus' public life began after He was baptized by John the Baptist in Judea with water from the River Jordan. According to Luke, Jesus was baptized when He was about 30 years old. John the Baptist preached repentance and baptized those who accepted his message.

**Ministry.** The mission of Jesus was to announce that the Kingdom of God was coming, and that it had begun to arrive even as He announced it. He did this both in words and in actions, by His miracles and His teaching. By the "Kingdom of God," Jesus meant a new state of affairs on earth, which God would bring about. In it all people would live as God's children.

After Jesus' baptism, He went to Galilee to begin to spread His message. According to Matthew, Mark, and Luke, the first part of Jesus' ministry was in Galilee and the area around it. He chose Capernaum, near the Sea of Galilee (Lake Gennesaret), as His headquarters. At the end of His ministry in Galilee, Jesus travelled to Jerusalem, where He died. According to John, however, Jesus travelled between Galilee and Judea several times.

Jesus attracted many *disciples* (close followers). He chose 12 disciples who assisted Him. They became known as the *apostles*.

**The miracles.** The Gospels tell of many miracles that Jesus performed. He did not work any miracles for His own benefit. His miracles showed that what He said

about the Kingdom of God was true. In each miracle, the Kingdom of God broke into human life in a small way. The miracles brought relief from all kinds of sickness and suffering. This relief showed the meaning of the Kingdom of God.

According to the Gospel of John, Jesus' first miracle took place at a wedding feast at Cana. When His host ran short of wine, Jesus changed water into wine. According to the Gospel of Luke, Jesus performed another early miracle at the Sea of Galilee. There, the apostle Peter caught so many fish that the weight of the fishing net almost sank the boat. Another time, Jesus divided five loaves of bread and two fishes among 5,000 people so that everyone would have food. He also once amazed His disciples by walking on water.

Jesus performed other miracles that healed sick people or relieved them from other kinds of suffering. He enabled lame people to walk and restored sight to the blind. The Gospel of John tells of Jesus' miracle that brought His friend Lazarus back to life after Lazarus had been dead and buried for four days. Jesus used His power to perform miracles in order to show the love and mercy of God.

**His teaching.** In addition to proclaiming the Kingdom of God by His miracles, Jesus also proclaimed it by His teaching. Jesus often used *parables* to explain the Kingdom of God. Parables are brief stories that teach lessons. One of Jesus' well-known parables, *The Prodigal Son*, is found in Luke 15:11-32. The parable describes a father's great joy at the return of his wayward son. Jesus used this story to teach God's love and forgiveness for sinners who repent.

Jesus also told His followers what kind of life they would have to live in the Kingdom of God. He taught people to love God and their neighbours. Jesus stressed that each person should treat others as he or she wished to be treated. He also instructed His listeners not



*Jesus Opens the Eyes of a Man Born Blind* (about 1311), a tempera painting on wood by Duccio di Buoninsegna, the National Gallery, London

**Jesus restored a blind beggar's sight** in a miracle described in the Gospels. The apostles watch as Jesus touches the beggar's eyes. The beggar rejoices, *far right*, at being able to see for the first time.



*The Agony in the Garden* about 1460, a tempera painting by Andrea Mantegna. National Gallery, London

Jesus was arrested by Roman soldiers in Gethsemane, a garden east of Jerusalem. This painting shows Jesus praying in the garden. His followers Peter, James, and John are shown sleeping in the foreground. In the background, Jesus' betrayer Judas Iscariot leads the soldiers to the garden.

to fight back if they were attacked. He commanded, "Whosoever shall smite thee on thy right cheek, turn to him the other also" (Matt. 5:39).

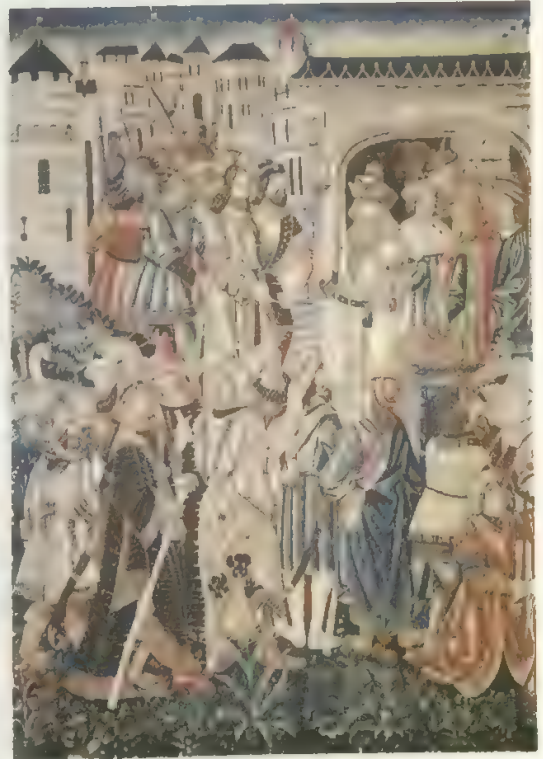
### The Passion

Jesus' proclamation of the Kingdom of God was good news for many people. But some, especially the leaders of the people, were unhappy with Him. They believed that Jesus changed accepted religious practices, such as the Sabbath laws. But most of all, the leaders feared that His popularity would encourage a rebellion against the Roman Empire. Then the Romans would destroy the Jewish nation.

Jesus probably knew that it was dangerous to carry out His ministry. But He considered His ministry to be His duty. He was determined to preach the good news of the Kingdom of God. Jesus felt that He had come to save other people by giving His own life. The *Passion* is a term used to indicate Jesus' suffering during the final days of His life. Christians remember these final days during Holy Week.

**The Last Supper.** Jesus arrived in Jerusalem for Passover week. He made a triumphal entry into the city. People cheered Him and covered His path with clothing and the branches of palm trees. They were grateful for His teaching and healing. Many of them believed that He would bring a better life to the Jewish nation. Jesus went into the Temple and drove out the men who were changing money and selling doves. He taught that the house of God must be for prayer, and not for making money.

During the next few days, Jesus spent part of His time teaching in Jerusalem. The rest of the time He spent in the nearby town of Bethany. He had a final meal with His disciples in Jerusalem. This meal is often called the Last Supper. During the meal, Jesus told His disciples that



Detail of *Christ Before Pilate*, a tapestry (late 1400's) by an unknown French artist; Museum of Fine Arts, Boston, Massachusetts, U.S.A.

Jesus was brought before Pontius Pilate, the Roman governor of Judea, for a trial. Jewish leaders said that Jesus claimed to be King of the Jews. He was charged with treason against Rome. Pilate sentenced Jesus to crucifixion.



one of them would betray Him. According to Matthew, Mark, and Luke, this supper was the Passover meal. As Jesus gave His disciples bread, He said, "This is my Body." As He gave them wine, He said, "This is my Blood" (Matthew 26:26-28, Mark 14:22-24, and Luke 22:19-20). The Christian ceremony of *Communion* is based on the Last Supper.

**The trial.** After the meal, Jesus and His disciples went to Gethsemane, a garden on the slope of the Mount of Olives, opposite the Temple. According to Matthew, Mark, and Luke, Jesus prayed there in agony, knowing the things that were to happen to Him, but He submitted Himself to God's will. A band of armed men came to the garden to arrest Jesus. Judas Iscariot, one of His disciples, pointed Him out to them. Thus, Judas was the one who betrayed Jesus. The Gospel of Matthew says that Judas later hanged himself.

The men took Jesus to the high priest's house. There the leaders of the people questioned Jesus. According to Matthew, Mark, and Luke, they asked Him if He was the Messiah. When He did not deny it, they said that He had *blasphemed* (insulted God's name).

The Jewish leaders took Jesus before Pontius Pilate, the Roman governor of Judea. They said that Jesus claimed to be King of the Jews and charged Him with treason against Rome. According to the Gospel of Luke, Pilate found out that Jesus was a Galilean and sent Him

to Herod Antipas, the ruler of Galilee. Herod mocked Jesus, dressed Him in a kingly robe, and sent Him back to Pilate.

It was the custom for the Roman governor to release one Jewish prisoner at the Passover season. Pilate took Jesus and a condemned criminal named Barabbas onto the steps of his palace and told the crowd to choose which one should go free. The crowd turned against Jesus and chose Barabbas. Pilate then sentenced Jesus to die on a cross. Crucifixion was a common Roman form of execution.

**The Crucifixion.** According to Matthew, Mark, and John, the Roman soldiers mocked Jesus for claiming to be King of the Jews. They dressed Him in a red robe, placed a crown of thorns on His head, and put a reed in His hand. Some of the men struck Him.

The Gospel of John says that Jesus carried His own cross to the place of the Crucifixion. According to the other Gospels, the soldiers made a man named Simon of Cyrene carry the cross. They nailed Jesus to the cross outside the city, on a hill called Golgotha (Calvary). On the cross they wrote the charge against Jesus, "The King of the Jews." The soldiers set up His cross between the crosses of two thieves.

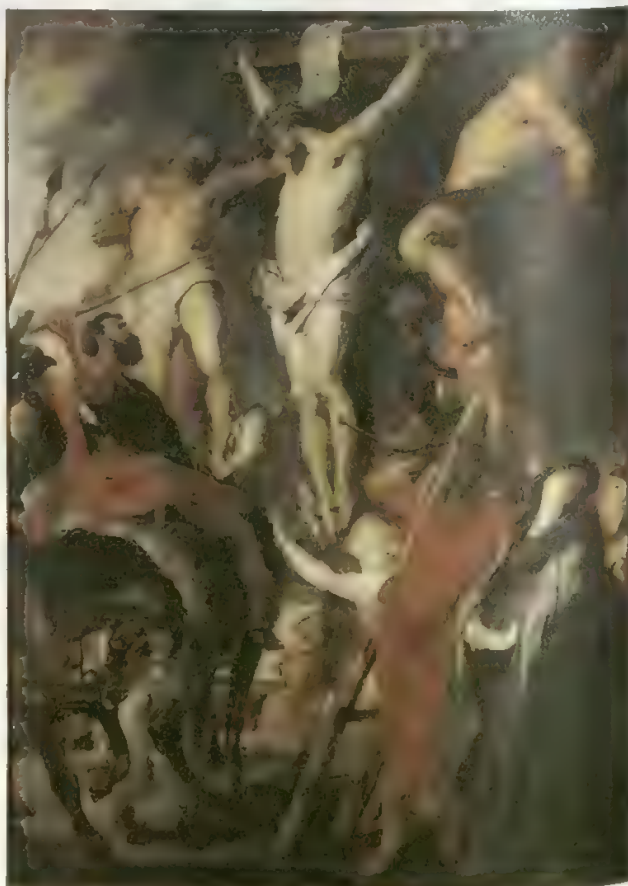
According to Luke, Jesus said as He hung on the cross, "Father, forgive them; for they know not what they do" (Luke 23:34). According to both Matthew and Mark,

*Le Coup de Lance* (1620), an oil painting on wood by Peter Paul Rubens; Koninklijk Museum voor Schone Kunsten, Antwerp, Belgium



*Christ on the Road to Calvary* (about 1340), a tempera painting on wood by Simone Martini the Louvre Paris

**Jesus' last hours.** The place of Jesus' Crucifixion was a hill called Calvary. The painting above shows Jesus carrying His cross toward Calvary. He was crucified along with two condemned thieves. According to the Gospel of John, a Roman soldier later pierced Jesus' body in the side with his spear, *right*.





Illuminated manuscript early 1400's by the Limbourg brothers from the Duc de Berry's *Très Riches Heures*, Musée Condé, Chantilly, France

**The Resurrection of Jesus**, as related in the Gospels, occurred on the third day after His Crucifixion. In this picture, Jesus greets an angel on His tomb, while the Roman guards collapse on the ground in fear and awe.

He cried out, "My God, My God, why hast thou forsaken me?" (Matt. 27:46; Mark 15:34). After Jesus died, a disciple named Joseph of Arimathea took His body to a new tomb and sealed the tomb with a stone.

**The Resurrection.** Christians refer to Jesus' return to life as His Resurrection, and celebrate it on Easter Sunday. The Gospels tell how Mary Magdalene went to Jesus' tomb on Sunday morning. She found the stone rolled away and the tomb empty. The Gospels also record various appearances of Jesus after the discovery of the empty tomb. He appeared to Mary Magdalene (Matthew, John), to Simon Peter and to two disciples who saw Jesus on the road to Emmaus (Luke), and to the 11 faithful disciples who met Jesus in Jerusalem (Luke, John) and in Galilee (Matthew, John). According to the Acts of the Apostles, Jesus stayed on earth during the next 40 days and taught His disciples. Then He rose into heaven. This rising into heaven is often called *The Ascension*.

### The early Christians

The Resurrection of Jesus convinced His disciples that He was not only the one who announced the coming of the Kingdom of God, but also the Messiah, who would bring the Kingdom into being. They believed that through His death and Resurrection, Jesus began to free the human race from all suffering and evil. The disciples also believed that He would come again to complete the work He had begun.

The disciples quickly converted hundreds of people to the new faith. The missionary activity of the apostle Paul helped to spread Christianity throughout the eastern Mediterranean area within 30 years after the death of Jesus. The Christians suffered persecution by the

Roman authorities, but the faith continued to spread. Finally, in 313, Emperor Constantine the Great gave the Christians freedom of worship.

During this time, the Christians tried to understand Jesus more fully. Eventually they came to see that He was not only the Messiah, but also the Son of God in a special sense not shared by anyone else. The Christians explained the relationship of Jesus to God by means of the *doctrine of the Trinity*. This doctrine states that in one God there are three Divine Persons: the Father, the Son, and the Holy Spirit. As the Son, Jesus is equal with the Father. The doctrine of the Trinity explained why Jesus had absolute authority for His teachings and absolute power to forgive sins and give eternal life.

**Related articles in *World Book* include:**

Anunciation	Good Friday	Messiah
Apostles	Gospels	Miracle
Beatitudes	Holy Grail	Mount of Olives
Bible (The New Testament)	Holy Week	New Testament
Christian Era	Jerusalem (map)	Palm Sunday
Christianity	John the Baptist	Parable
Christmas	Joseph	Peter, Saint
Communion	Judas Iscariot	Pilate, Pontius
Easter	Lazarus	Resurrection
God	Magi	Shroud of Turin
Golden Rule	Mary	Transfiguration
	Maudy Thursday	Trinity

### Outline

- I. Early life
- II. Public life

- III. The Passion
- IV. The early Christians

### Questions

Which books of the Bible tell about the life of Jesus? In what town was Jesus born? Where did He die? Who were (1) Pontius Pilate? (2) Judas Iscariot? What does the name Jesus Christ mean? What were two miracles that Jesus performed? What did Jesus tell His apostles at the Last Supper? Who baptized Jesus? What were (1) the Nativity? (2) the Passion? Where was Jesus arrested? Why was Jesus' Resurrection important to His early followers?

**Jesus Movement.** See Religion (Religion today).

**Jet** is a kind of coal so hard and uniform that it can be carved and polished to look like black glass. It is used to make buttons and costume jewellery. See also Gem (picture).

**Jet aeroplane.** See Aeroplane (The jet age; Jet engines); **Jet propulsion.**

**Jet boat** is a small craft that is propelled by a jet of water pumped at a high velocity through a nozzle at the stern. An internal combustion engine sucks water through a grille situated amidships in the boat and then pumps the water in a jet stream through an elbow-shaped nozzle out through the transom, above the waterline. Jet boats are especially suitable for use in shallow waters, such as fast-flowing, narrow rivers. They have navigated the rivers of Nepal and, in the United States, the rapids of the Colorado River. The marine jet engine that powers modern jet boats was invented and developed by William Hamilton, a New Zealand engineer and farmer. He tested his first jet boats in the fast-flowing rivers in the foothills of New Zealand's Southern Alps. He patented his invention in 1955.

**Jet engine.** See Jet propulsion; Aeroplane (Jet engines).

**Jet lag,** or jet exhaustion. See Biological clock.





A huge jet engine produces the power needed to fly aeroplanes with heavy loads of passengers and freight.

**Jet propulsion** is the production of motion in one direction by releasing a high-pressure stream of gas in the opposite direction. Rockets, guided missiles, and many aeroplanes are powered by jet propulsion.

Jet-propelled aeroplanes can reach much higher speeds than propeller-driven aeroplanes. Some jet aircraft fly faster than sound travels through the air. Jet propulsion also makes flight possible at extremely high altitudes—and even in outer space.

Jet engines cause less vibration than do piston engines, which are used in some aeroplanes to turn propellers. This smoothness of operation results in a safer and more comfortable ride. Jet engines are generally smaller and lighter in weight than piston engines that produce the same amount of *thrust* (forward-driving force). However, jet engines burn more fuel than piston engines do in order to create an equal amount of thrust.

About A.D. 60, the scientist Hero of Alexandria built a small toylike device that was probably the first jet engine. During the 1200's, the Chinese used rockets in war-

fare. The first flight of an aeroplane powered by a jet engine occurred in Germany in 1939. Since then, jet propulsion has powered aircraft of all types, including supersonic airliners and spacecraft that have journeyed to other planets.

### How jet propulsion works

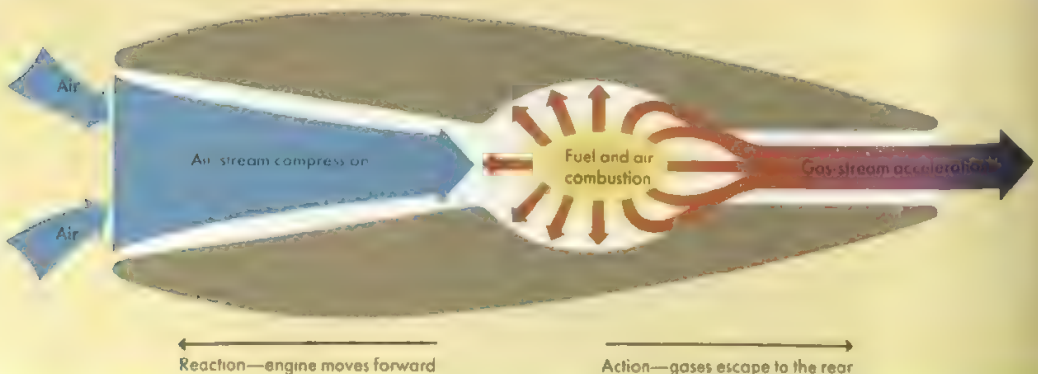
The principle of jet propulsion can be demonstrated with a simple garden hose connected to a water supply. When the nozzle at the end of the hose is closed, the water pushes in all directions against the inside surface of the nozzle. It also pushes back against the water in the hose that is trying to squeeze into the nozzle. When the nozzle is open, some of the water squirts out through the opening. This action upsets the balance of pressure inside the nozzle. It releases the pressure pushing forward just inside the nozzle opening. But the water that is still in the nozzle continues pressing backward and to the sides. If you let go of the nozzle, the unbalanced, backward-pushing pressure will propel it backward. The nozzle will move in the direction opposite that of the jet of water escaping from the nozzle.

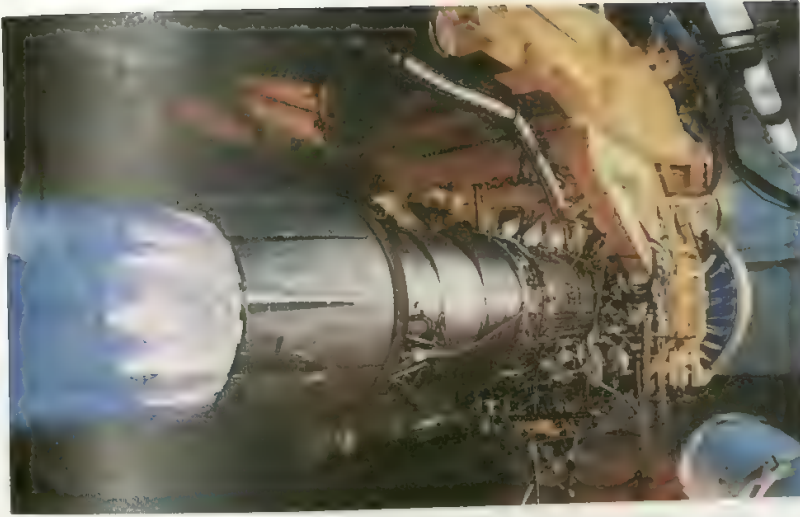
The principle of jet propulsion was first described in 1687 by the English scientist Sir Isaac Newton in his third law of motion. This law states that for every action there is an equal and opposite reaction. In the above example, squirting water out of the end of the nozzle is the action. The equal and opposite reaction is the backward movement of the nozzle. Jet propulsion drives an aircraft engine in much the same way. Air pressure builds up inside the engine. The pressure pushing in one direction is released in a powerful stream of jet exhaust. The action of this exhaust escaping from the rear of the engine causes an equal and opposite reaction that pushes the engine forward. See **Motion** (Newton's laws of motion).

Jet engines and rockets both use the principle of jet propulsion. However, they use different sources of oxygen to burn fuel. Jet engines use the oxygen in the air. For this reason, aeroplanes with jet engines cannot fly outside the earth's atmosphere. Rockets carry their own supply of oxygen to use in burning their fuel. As a result,

### How a jet engine works

Air enters the jet engine, is compressed, mixed with fuel, and burned. The combustion gases push in all directions but can escape only at the rear of the engine. The action of these gases accelerating as they leave the engine creates a reaction that pushes the engine in the opposite direction.





Testing a jet engine requires a specially equipped chamber. A test stand holds a running turbofan engine, left, in order to measure the thrust (forward driving force) the engine produces.

rockets can fly in the airless expanse of outer space. See **Rocket** (How rockets work).

**Power in a jet engine** is produced by burning fuel in a combustion chamber. The combustion gases then rush out through a nozzle, creating jet thrust.

Air enters the jet engine through an inlet duct. It is then compressed until it has from 3 to 30 times as much pressure as that of the outside air. The compressed air flows into the combustion chamber. There, part of the air is mixed with a fine spray of jet fuel. Most jet engines use a liquid petroleum fuel similar to kerosene. The mixture of fuel and air is ignited and burns, releasing a large amount of energy. The temperature of combustion ranges from about 1800° to 2000° C. These high temperatures could damage the jet engine. However, the remainder of the compressed air is mixed with the hot combustion gases to lower the temperature of the gases somewhat and to cool the walls of the combustion chamber. The exhaust gases then escape through a nozzle at an extremely high speed.

A jet-propulsion engine creates thrust by accelerating a small amount of gas to great speeds. The exhaust of a jet-propulsion engine contains much unused energy in the form of heat. By contrast, a propeller moves a large amount of air at a low speed, leaving little unused energy in the air. For this reason, a propeller wastes less energy and generates thrust more efficiently.

The amount of thrust produced by a jet-propulsion engine is about the same at all flight speeds. But the amount of thrust generated by a propeller drops off as the flight speed increases. Thus, jet-propelled aircraft can reach much higher flight speeds than propeller-driven aircraft can.

An engine's thrust is measured in a specially designed chamber. Such a chamber can create the different conditions that the engine may encounter. It can provide a flow of air to the engine similar to that occurring in flight at different speeds and altitudes. The thrust produced by an aircraft engine is expressed in pounds or newtons. For example, each of the four huge jet engines used on many Boeing 747 airliners produces 51,600 pounds (230,000 newtons) of thrust.

### Types of jet engines

There are four major types of jet engines: (1) turbojet, (2) turboprop, (3) turbofan, and (4) ramjet. They differ chiefly in the portion of their total thrust that they produce directly by jet propulsion. Turboprops and turbofans generate most of their thrust by turning propellers or propellerlike fans rather than by pure jet propulsion. Jet engines also differ in the way they compress the air that enters the intake ducts.

**Turbojet** was the first type of jet engine used to power an aeroplane. All other types of jet engines are variations of the turbojet.

An inlet duct scoops air into the turbojet and carries the air to the compressor. The job of the inlet duct becomes more complicated in jet fighters and other aircraft that fly faster than the speed of sound. Supersonic flight causes shock waves to develop in the air as it rushes through the inlet duct. These shock waves may drastically limit the flow of air to the compressor. However, a turbojet can reduce the blockage caused by such shock waves by continually adjusting the shape of the inside of the inlet duct.

The compressor raises the pressure of the air in the engine. The compressor in a turbojet is a kind of *turbine* (rotor device). Turbojets are equipped with either an *axial-flow compressor* or a *centrifugal-flow compressor*.

An axial-flow compressor consists of several wheels with many small, winglike blades attached, as in an electric fan. These wheels are arranged one behind another along a shaft that runs through their centres and turns them at high speeds. Between each pair of wheels is a set of stationary blades. The air flows through the compressor parallel to the shaft. Each row of blades squeezes the air, increasing its pressure. Some axial-flow compressors raise the air pressure to a level about 30 times that of the air entering the inlet duct.

A centrifugal-flow compressor squeezes the air by taking it in near the centre of a rapidly spinning wheel and throwing the air out toward the rim. The wheels of centrifugal-flow compressors cannot be arranged in rows like those of axial-flow compressors. For this rea-



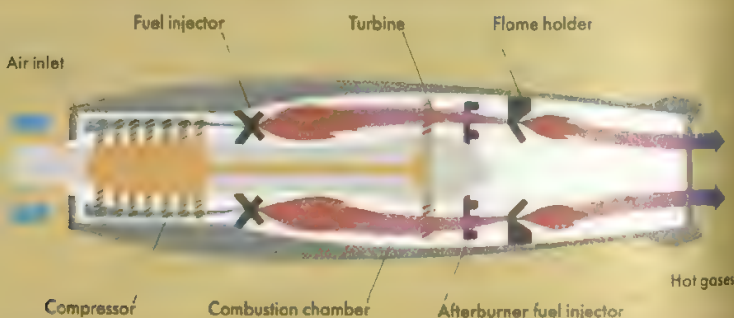
## Kinds of jet engines

The diagrams below show the principal parts of four major types of jet engines and how these engines produce power. The diagrams on the left show front views of the engines. The photographs on the opposite page show examples of aircraft that use these types of engines.

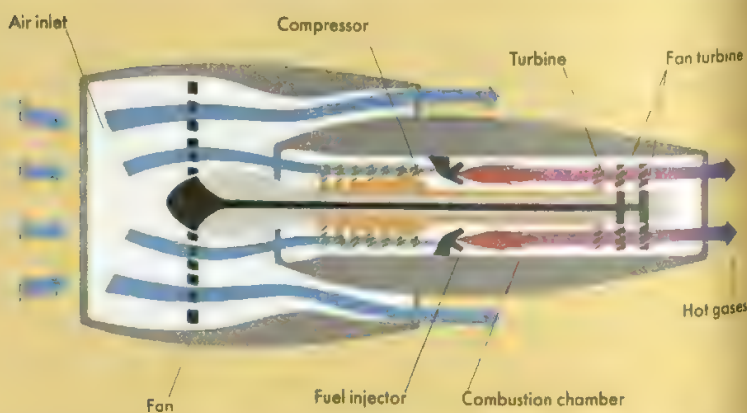
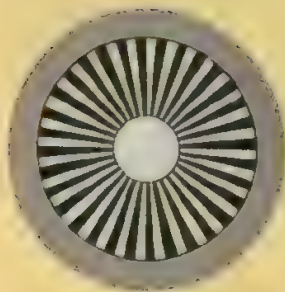
Ramjet



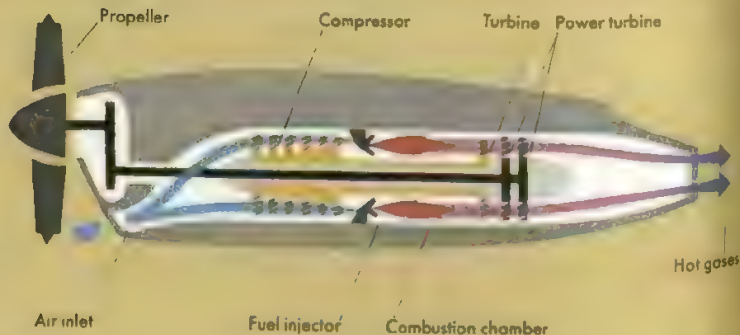
Turbojet



Turbofan



Turboprop



A **ramjet engine** must be brought up to supersonic speed by a rocket or another jet engine before it can operate. Air rushes into the engine through the air inlets. The air slows down as it approaches the combustion chamber. It is compressed by more air entering the inlet behind it. In the combustion chamber, the compressed air is mixed with fuel supplied by the fuel injector and burned. The pressure produced by the burning fuel and air sends hot exhaust gases out the jet nozzle and drives the engine forward. Ramjets operate best at high, steady speeds. For this reason, they have been used chiefly to propel guided missiles, such as the one shown on the right.



**Turbojet engines** have a compressor with fanlike blades that squeeze the incoming air. The compressor blades also force the compressed air into a set of combustion chambers. There, the compressed air is mixed with fuel and ignited, forming burning gases. The gases expand rapidly and rush through the blades of a turbine, making it spin. The turbine is connected by a shaft to the compressor and keeps the compressor turning. An afterburner gives a turbojet extra thrust by supplying the hot exhaust gases with extra fuel. This fuel is burned, increasing the speed of the jet exhaust. Metal grids called *flame holders* prevent the fast-moving gases from blowing out the flames. Turbojet engines power the F-56 Tiger II, a U.S. fighter aircraft, shown on the right.



**Turbofan engines** resemble turbojet engines but have a huge propellerlike fan at the air inlet. Most of the air drawn through the fan passes around the rest of the engine, creating thrust. The rest of the air enters the enclosed engine, which operates like a turbojet to produce thrust. It consists of a compressor, combustion chambers, and two kinds of turbines. One turbine drives the compressor and the other, called a *fan turbine*, turns the fan. By using two methods to produce thrust, a turbofan can create more thrust at low speeds than a turbojet can. The turbofan also runs more quietly and uses less fuel. The turbofan is the most common type of jet engine. Turbofans power many commercial airliners, such as the DC-10 shown on the right.



**Turboprop engines** consist of a propeller and a turbojet engine. The turbojet engine is used chiefly to turn the propeller, which supplies most of the turboprop's driving power. The propeller rotates when burning gases from the combustion chambers turn the power turbine. This turbine is connected to a shaft that drives the propeller by a system of gears. When the hot gases escape from the engine, they provide a small amount of additional thrust. Turboprop engines are most efficient at relatively low flight speeds. They are smaller and lighter in weight than piston engines that produce the same amount of power. Turboprops are widely used in small business aircraft, such as the Beechcraft Super King Air shown on the right.





son, centrifugal-flow compressors can only raise the air pressure to about six times that of the outside air.

After the air leaves the turbojet compressor, it enters the combustion chamber. There, from 25 to 40 per cent of the compressed air is mixed with jet fuel and burned. Combustion increases the temperature and pressure of the gases. The rest of the air from the compressor is then mixed with these gases to cool them somewhat.

As the hot gases rush out of the combustion chamber, they pass through the blades of a turbine. The combustion gases spin the turbine wheels, which rotate the shaft that turns the compressor.

After passing through the turbine, the combustion gases reach the nozzle. All the other parts of the turbojet only serve to energize these gases and bring them to the nozzle, where they produce thrust. In a typical turbojet, the exhaust gases leave the nozzle at a speed of about 1,600 kilometres per hour. Nozzles designed for flight speeds below the speed of sound narrow gradually to the opening. Nozzles designed for supersonic flight narrow and then flare out again. This widening of the nozzle helps accelerate the gases beyond the speed of sound.

Some turbojets are equipped with devices called *afterburners*. Afterburners are used to greatly increase the thrust of the engine for short periods of time. The afterburner is located between the turbine and the exhaust nozzle in a turbojet. The combustion gases leaving the turbine are still rich in oxygen. In the afterburner, additional jet fuel is mixed with these gases and burned, greatly raising the temperature. The energized gases then accelerate through the nozzle, reaching extremely high speeds. This high-speed exhaust generates a great deal of thrust. But afterburners use a large amount of fuel. For this reason, afterburners are used only for short periods of time, such as during emergency manoeuvres, rapid take-offs, or steep climbs.

Turbojets are used primarily to power military aircraft. The U.S. Northrop F-5E jet fighter uses two turbojets with afterburners. Each turbojet generates 3,500 pounds (15,600 newtons) of thrust. The afterburners boost the thrust to 5,000 pounds (22,200 newtons). Some small passenger jets also use turbojets.

**Turboprop** is basically a turbojet that uses nearly all its power to turn a propeller. The arrangement of the compressor, combustion chamber, and turbine in a turboprop is similar to that in a turbojet. However, the turboprop also has a second turbine just to the rear of the turbine that turns the compressor. Combustion gases spin the second turbine, which is sometimes called the *power turbine*. This spinning motion is transferred by a shaft and a gearbox to the propeller.

There is still a little energy left in the combustion gases after they have turned the power turbine. These gases shoot out of the nozzle, adding a small amount of jet thrust to the thrust produced by the propeller.

The turboprop is smooth running, reliable, and economical, but it is limited to subsonic flight speeds. Turboprops are much smaller and lighter in weight than piston engines that produce the same amount of power. Large transport planes and small- to medium-sized passenger planes use turboprop engines. Helicopter rotors are often powered by turbojet engines, which are then called gas turbines.

**Turbofan** is essentially a turbojet that uses part of its power to turn a large, propellerlike fan. This fan is enclosed in a podlike cover at the front of the engine. It rotates rapidly, powered by a turbine similar to that of a turboprop.

The fan pushes a large volume of air back toward the engine. Part of this air enters the engine, where it is compressed, mixed with fuel, burned, and released to generate jet thrust. But most of the air accelerated by the fan by-passes the engine. The fan forces this air back along the outside of the engine, creating thrust. By combining these two propulsion methods, a turbofan achieves some of the efficiency of a propeller-driven aircraft without sacrificing the high-speed performance of a turbojet. Some turbofans are also equipped with afterburners to boost their power.

A further advantage of the turbofan is its low noise level. Jet noise becomes louder as the jet exhaust velocity increases. The speed of gases leaving a turbofan is lower than the speed of turbojet exhaust. Thus, a turbofan is quieter than a turbojet.

The turbofan is the most common jet engine. The Boeing 747 and all other large airliners use turbofans. Most military jets also are powered by turbofans.

**Ramjet** is the simplest type of jet engine. It is basically a turbojet without a compressor or turbine. Air entering a ramjet is slowed down in the inlet duct. This air is compressed by the ramming action of more air trying to enter the duct as the ramjet travels at high speed. The compressed air is mixed with fuel and burned, and the combustion gases are accelerated through the nozzle to create thrust. Because of its simplicity, the ramjet is sometimes called the "flying stovepipe."

The major disadvantage of the ramjet is that it cannot function at subsonic flight speeds. A ramjet must fly at supersonic speeds to create the amount of air compression necessary for the engine to work. As a result, a ramjet must be accelerated to supersonic operating speed by a turbojet or a rocket.

Ramjets are not used to propel aeroplanes. However, ramjets power the U.S. Teledyne Ryan Firebrand, a remote-controlled, supersonic target aircraft that is used to imitate antishipping missiles.

### Development of jet propulsion

The scientist Hero of Alexandria built a small jet engine about A.D. 60. It was powered by steam escaping from a hollow sphere through two nozzles that pointed in opposite directions. The escaping steam turned the sphere in much the same way that jets of water spin a rotating lawn sprinkler.

The growing tensions that led to World War II (1939-1945) accelerated the development of jet engines to propel aircraft. The first flight of a jet aeroplane occurred in Germany in 1939. This aeroplane, the Heinkel He-178, was powered by a turbojet designed by Hans von Ohain, a German physicist. In Italy, the jet-propelled Caproni-Campini CC2 aeroplane was built and flown in 1940.

Neither of these first two jet aircraft engines proved practical. A more successful turbojet soon was developed by Frank Whittle, an officer in Great Britain's Royal Air Force. Whittle's turbojet powered the Gloster E. 28/39, which first flew in 1941.



The first jet aircraft was the German Heinkel He-178. It first flew on Aug. 27, 1939. The plane was powered by a turbojet designed by Hans von Ohain, a German physicist.

During World War II, Germany pioneered the use of jet engines for propelling guided missiles. In 1947, the rocket-powered Bell X-1, built in the United States, became the first aeroplane to fly faster than the speed of sound.

During the 1950's, turbojets and turboprops began to power some commercial airliners. Also at this time, ramjets propelled such early United States guided missiles as the Bomarc and Talos. During the 1960's, the turbofan began to replace the turbojet on commercial and military aircraft.

Because of the turbofan's efficiency and low noise, it came into widespread use in the 1970's. Research to improve the ramjet as a missile engine intensified during the 1970's and 1980's.

#### Related articles in *World Book* include:

Aeroplane (Power for flight)	Rocket
Guided missile	Space travel
Motion (Newton's laws of motion)	Whittle, Sir Frank
Motorboat racing (Engine designs)	

#### Outline

##### I. How jet propulsion works

- The principle of jet propulsion
- Power in a jet engine

##### II. Types of jet engines

- Turbojet
- Turboprop
- Turbofan
- Ramjet

##### III. Development of jet propulsion

#### Questions

- What advantages do jet aircraft engines have over piston aircraft engines?
- How do rockets differ from jet engines?
- What is the most common type of jet engine?
- Who was Hero of Alexandria?
- Which type of jet engine uses most of its power to turn a propeller?
- What is thrust?
- When was the first flight of a jet aeroplane?
- What is an afterburner?
- Which type of jet engine is called a "flying stovepipe"?
- What is Newton's third law of motion?

**Jet Propulsion Laboratory** is a centre for the design of unmanned spacecraft and their control in space. The California Institute of Technology operates the laboratory, located in Pasadena, California, U.S.A., for the National Aeronautics and Space Administration (NASA).

In 1958 and 1959, the laboratory sent two probes on a mission to explore the space between the planets. Engineers at the centre guided the *Ranger* space probes that photographed the moon. The engineers also guided the *Surveyor* spacecraft that made the first unmanned United States moon landings. These missions, flown from 1962 to 1968, prepared the way for astronauts to land on the moon. *Mariner* probes controlled from the laboratory have reached Venus, Mars, and Mercury. The laboratory also controlled the *Viking* probes, which studied the atmosphere and soil of Mars during the mid-1970's. It designed and operated the *Pioneer-Saturn* and the *Voyager* probes, which flew past Jupiter, Saturn, and Uranus in the late 1970's and the 1980's.

A few students at the California Institute of Technology established the laboratory in 1936 as a place for rocket research. The laboratory did research and development work on rockets for the Army from 1939 to 1958, when it was transferred to NASA. Some of its efforts in the 1980's have been devoted to defence research.

**Jet stream** is a band of fast-moving air currents that occur at high altitudes. Jet streams flow in wavelike fashion around the Northern and Southern hemispheres. They change position constantly and move both vertically and horizontally.

A jet stream's core of strongest winds measures about 100 kilometres wide and about 1.5 kilometres thick. The length of the core varies greatly, but it averages about 4,800 kilometres. The winds move at speeds greater than 100 kilometres per hour and may exceed 300 kilometres per hour.

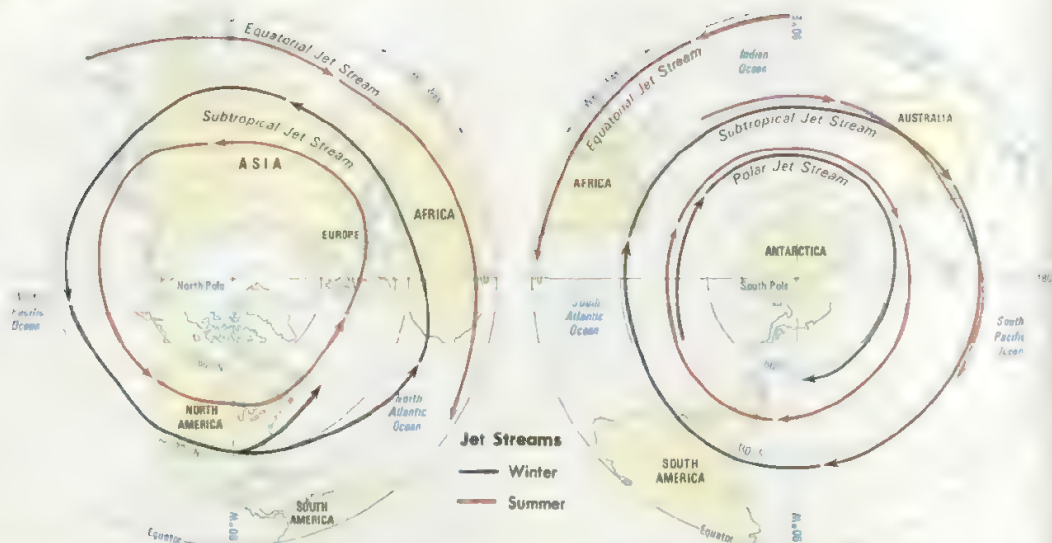
There are three main jet streams in the upper *troposphere*, the layer of the atmosphere nearest the earth. They occur at altitudes of 10 to 15 kilometres above the ground. These three jet streams are (1) the polar jet, (2) the subtropical jet, and (3) the equatorial jet. The paths of these jet streams are shown on the maps with this article.

The polar jet flows from west to east. In the Northern Hemisphere, its position varies so much that it is not shown on the map, but it generally lies between 30° and 60° north latitude (see **Latitude**). The subtropical jet also travels in an easterly direction. The polar jet and the subtropical jet both weaken during the summer and move farther north. The equatorial jet flows from east to west. Unlike the polar and subtropical jets, it does not circle the earth. It occurs only over Southeast Asia and Africa, and only in the summer.

Other jet streams occur at higher altitudes than those found in the troposphere. For example, the *polar night jet* is in the *stratosphere*, the atmospheric layer above the troposphere. It moves in an easterly direction and occurs only during the winter.

Jet streams were not widely known until World War II (1939-1945), when American and German pilots encountered them at high altitudes. These strong winds can significantly affect the speed of aircraft flying in or near them. In addition, the force of the winds in and near jet streams may cause aircraft in their vicinity to experience





**Jet streams** are fast-flowing air currents that move around both the Northern and Southern hemispheres at high altitudes. The jet streams shown on these maps occur in the *troposphere*, the layer of the atmosphere closest to the earth. These air currents flow from west to east, except the one nearest to the equator. This current flows towards the west.

turbulence. Jet streams also influence the earth's weather. These air currents are often associated with storms and even tornadoes.

**Jetty** is an engineering structure built into a river or harbour. It may be made of timber and stone, or of stone alone. Some jetties have an outer face of interlocking steel piles.

One type of jetty is built out into deep water from the shore so that ships can come alongside and discharge their cargo and passengers. The term *pier* is sometimes applied to a jetty, especially if it is in a harbour. Sometimes a *breakwater* is referred to as a jetty, if the breakwater is also used for ships to berth alongside.

A second type of jetty is a low wall built at the edges of rivers, and from river mouths out to sea, to direct the flow of water and so help to scour out a deep water channel. These walls are usually built in pairs, and are also called *training jetties* or *training walls*. Training jetties may be found in many parts of the world, such as on the Karniphuli River, in Bangladesh; on the River Mersey, in England; and on the Mississippi River, in the United States.

See also **Breakwater; Pier.**

**Jevons, William Stanley** (1835-1882), a British economist, was one of the first to formulate the economic theory of *marginal utility*. In this theory, price is related to scarcity as well as to practical value. Jevons's books include *Lessons in Logic* (1870), *Theory of Political Economy* (1871), and *Money and the Mechanism of Exchange* (1875).

Jevons was born in Liverpool, England, and educated at University College, London, where he later held the post of professor of political economy.

See also **Economics.**

**Jew.** See **Jews.**

**Jewel** is an ornament made of enamel or precious metals or stones. Jewels are generally used for personal wear, but may also adorn items of state, as in some of the *crown jewels*. *Jewel* also refers to the pivot bearing in a watch.

See also **Crown; Gem; Jewellery.**

**Jewellery** refers to the ornaments people wear. The most common types are bracelets, brooches, earrings, necklaces, and rings. Jewellery has been chiefly used for



**Training jetties** are built from river mouths out to sea in order to deepen a water channel by increasing the current.

**Kinds of jewellery** A prehistoric necklace, *below left*, consists of polished stones. An ancient Roman gold bracelet, *lower left*, has the form of a serpent. Chinese hair ornaments, *below right*, were made of amber, metal, pearls, and feathers. Indians of Peru wore gold and turquoise ear ornaments *lower right*.



New Delhi Museum, India



The Metropolitan Museum of Art, New York City



Naples National Museum, Italy



personal decoration. But it has also been worn for religious or magical purposes, or as a symbol of wealth or status. Most fine jewellery consists of precious metals and gems created in artistic designs. Gold is the chief metal used, but silver and platinum are also widely used.

**Early jewellery.** Prehistoric jewellery consisted largely of crude necklaces and bracelets. They were made of leather or reeds strung with pebbles, berries, feathers, shells, or animal bones. People used decorative thorns or sharp bones to hold clothing together. Eventually, people pierced their ears, lips, and noses to wear such objects. People wore jewellery as part of religious ceremonies or to show rank. They believed certain jewellery could protect them from sickness and bad luck.

Gradually, people learned to make jewellery from

ivory, wood, and metal. As early as 3500 B.C., craftworkers discovered that gold heated with fire could be pounded into thin sheets and then shaped. Silver, copper, and bronze were also used.

By the late 2000's B.C., the ancient Egyptians were using gemstones in such jewellery as bracelets, brooches, headdresses, pendants, and rings. They believed that gems had magical powers and wore them for good luck.

The ancient Egyptians made jewellery from a variety of gemstones as well as from glass, *faïence* (tin oxide-glazed earthenware), and enamel. They wore beaded *collars*, which covered the shoulders and chest; breast ornaments called *pectorals*; and crownlike *diadems*. Egyptians also wore bracelets, anklets, earrings, and rings. The Egyptians included jewellery in tombs because they believed it would be useful in the afterlife.



The Greeks valued fine metalwork in their jewellery and rarely used inlaid gems. Greek jewellery featured beautiful *filigree*, a lacelike decoration made by twisting fine wires of gold or silver into patterns.

Unlike the Greeks, the Romans often used gems in their jewellery. They used gold settings but placed greater emphasis on precious stones. They especially wore gems in rings. The Romans were probably the first to use rings as a symbol of engagement.

**European jewellery.** During the early Middle Ages, beginning in the A.D. 700's, the wearing of jewellery was almost entirely restricted to royalty and members of the royal courts. Between 1200 and 1400, a prosperous middle class developed. This class began to acquire jewellery, wearing it as a sign of social status. Gold was still the most prominent precious metal, though some bronze and silver was also used. Jewellery most often took the form of brooches, buckles, head ornaments, and rings.

Precious stones were very fashionable in the 1500's. Jewellers often set gems in heavy pendants that were fastened to the sleeve, as well as on a chain around the neck. Women wore long strands of pearls and other gems into their hairdos. The first watches were made in the early 1500's. People wore them in pendants and miniature cases. During the 1600's and 1700's, diamonds became popular as a result of advances in gem cutting.

**African jewellery.** African craftworkers have always used local materials, such as bone, coloured feathers,

ivory, wood, and sometimes metals, to make colourful ornaments. Necklaces of shells and seeds, studs of ivory or bone for the lobes of the ears, and bronze bangles are still popular with some Africans.

**Asian jewellery.** Indian jewellers have been famous for their decorative skill for nearly 4,000 years. They use gold as their chief material. Wealthy Indians used to buy as much gold as they could afford. They then had it made into jewellery for their wives. This jewellery represented much of the family's wealth. Anklets, bracelets, and rings for the fingers, nose, and toes are still popular in India and Pakistan. In the countries of Southeast Asia, jewellers make much use of gems.

**Oriental jewellery.** Jewellery became popular in China during the Song dynasty (960-1279). The Chinese favoured silver, enamel, feathers, and jade. Jade was often carved or polished and combined with metal. Chinese jewellery was very delicate and elaborate and often took the form of ornate headdresses.

Japanese jewellery was similar to Chinese jewellery. However, the Japanese first used jewelled objects to decorate swords and ceremonial objects. Later, they began to wear jewellery as a personal adornment. Japanese jewellery consisted chiefly of earrings, hair ornaments, necklaces, pendants, and rings.

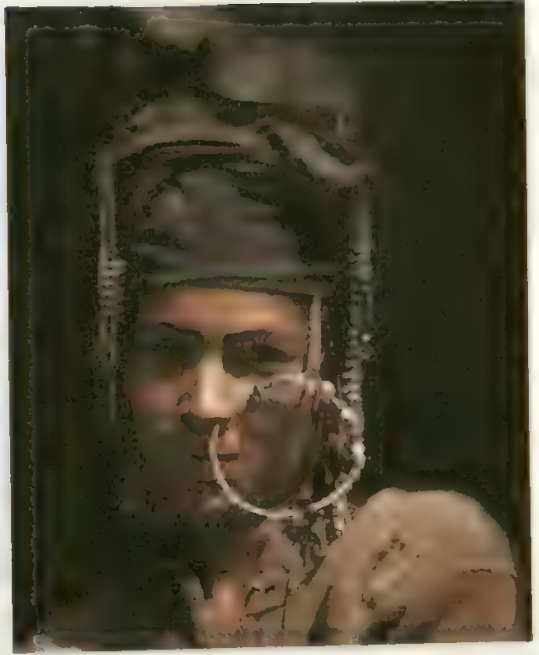
**Pre-Columbian jewellery.** American Indian art created before A.D. 1500 is called *pre-Columbian* because it was produced before Christopher Columbus arrived in the New World in 1492. During pre-Columbian times,



National Gallery of Art, Washington, D.C.



**Beautiful necklaces** illustrate contrasting styles of jewellery design. The highly decorated necklace on the left was made of enameled gold and jewels during the 1500's. The modern silver necklace on the right reflects the streamlined design that became fashionable in the 1900's.

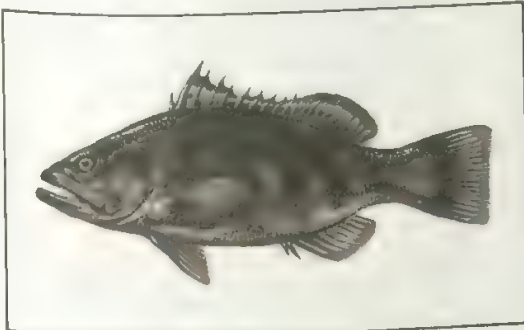


**Jewellery** has a very important role in Asian cultures. The Karenni tribeswoman from Burma, *left*, wears a necklace of rings. The rings bear down on the shoulders and emphasize the neck. In India, jewellery has been made for 4,000 years. A nosering, *right*, is worn as a marriage symbol.

the Indians of the Inca empire inhabited large parts of South America. The Inca cultures were highly skilled at working with metals, especially gold and silver. Most of the Inca jewellery was melted down by Spanish conquerors in the 1500's. However, a few pieces survived. These include large round rings, armbands, head-dresses, masks, ornate necklaces, and earrings.

The Maya Indians of southern Mexico and Central America made jewellery of gold, jade, and other local materials. The Maya created bracelets, large necklaces, and ceremonial masks with geometric designs.

**Modern jewellery.** Most jewellery today is machine made. However, many expensive pieces are created by hand. *Costume jewellery*, which is inexpensive mass-produced jewellery, is popular.



The Warsaw grouper, also called the black jewfish, lives in the Atlantic Ocean from the northern United States to Brazil. It weighs up to 200 kilograms and is a popular game fish.

**Related articles.** See the **Gem** article for a list of the stones and minerals that are used in jewellery and have separate articles in *World Book*. See also the following articles:

Cameo	Pin (pictures)
Etruscans (picture)	Platinum
Gold (Uses of gold)	Ring
Lapidary	Silver
Pearl	Watch

**Jewfish** is the name of several species of large fish, known as *groupers* (see **Grouper**). The *spotted jewfish* lives in the Caribbean region. It can grow up to 2.5 metres and may weigh up to 320 kilograms. It is a slow-moving fish and tends to remain in one area. The *black jewfish*, also called the *Warsaw grouper*, is another large grouper. It is found in Atlantic coastal waters from the northern United States to Brazil. The black jewfish grows to about 2.2 metres.

The Australian jewfish is a different type of fish, also known as *mulloway*. It lives in inshore waters, including estuaries. The Australian jewfish is an active, fast-swimming fish that feeds on other fish including mullet. It grows up to 1.8 metres long, and may weigh more than 60 kilograms.

**Scientific classification.** Groupers known as jewfish belong to the sea bass family, Serranidae. The spotted jewfish is *Epinephelus itajara*, and the black jewfish is *E. nigrilus*. The Australian jewfish belongs to the family Sciaenidae. It is *Johnius antarctica*.

See also **Bass** (picture: Spotted jewfish); **Fish** (picture: Fish of coastal waters and the open ocean).

**Jewish calendar.** See **Calendar** (The Hebrew calendar).

**Jewish feasts.** See **Judaism**.

**Jewish literature.** See **Hebrew language and literature**; **Yiddish language and literature**.





**Jews from many nations** come to Jerusalem to pray at the Western Wall, *above*, one of Israel's holiest shrines. The structure, also called the Wailing Wall, is all that remains of the Jews' holy Temple from Biblical times. It has long been a symbol of Jewish faith and unity.

## Jews

**Jews** are the descendants of an ancient people called the Hebrews. During Biblical times, the Hebrews—who came to be called Israelites—lived in what is now Israel. But their country fell to a series of conquerors, and the Jews scattered throughout the world. By the A.D. 700's, they had established communities as far west as Spain and as far east as China.

The Jews have had great influence on history. They produced the Hebrew Bible, which, with its belief in one God and its moral teachings, became a cornerstone of two world religions, Christianity and Islam. But Jewish history has been full of tragedy. The Jews were a minority group almost everywhere they settled, and they often suffered persecution. During World War II (1939-1945), about 6 million Jews died in the Nazi campaign of mass murder known as the *Holocaust*.

Jews have always considered Israel their spiritual home. Beginning in the late 1800's, many Jews from eastern Europe emigrated to Israel, then called Palestine. Many more Jews went to Palestine following the Holocaust. The state of Israel was founded in 1948.

Because of the long and varied history of the Jews, it is difficult to define a Jew. There is no such thing as a Jewish race. Jewish identity is a mixture of religious, historical, and ethnic factors. According to Jewish law, anyone born to a Jewish mother or converted to Judaism is considered a Jew. The branch of Judaism that is known as *Reform Judaism* also accepts as Jews children born to a non-Jewish mother and a Jewish father.

There are two broad groups of Jews. Most *Ashkenazim* are descendants of members of Jewish communities of central and Eastern Europe. The *Sephardim* are

descendants of Jews from Spain, Portugal, or other Mediterranean countries and the Middle East. Other groups of Jews include those descended from Jewish communities of Ethiopia and India.

There are about 13 million Jews in the world. The largest Jewish population—about 6 million—lives in the United States. About 3½ million Jews live in Israel. Other countries with large numbers of Jews include Argentina, Canada, France, Russia, and the United Kingdom (UK).

This article traces the history of the Jewish people throughout the world. For additional information about the history of Jews in Israel, see the *World Book* articles on **Israel** and **Palestine**. For more information about the Jewish religion, see **Judaism**.

### Early history of the Jewish people

**Beginnings.** The Jews trace their ancestry to a shepherd named Abraham, who lived sometime between 1800 and 1500 B.C. in southern Mesopotamia (now southeastern Iraq). According to the Bible, God told Abraham to leave Mesopotamia and settle in Canaan, the area that later became Israel. There, Abraham founded the people known as the Hebrews. Abraham, his son Isaac, and his grandson Jacob—also named Israel—are the *patriarchs* (fathers) of the Jewish people. The four *matriarchs* (mothers) are Sarah (Abraham's wife), Rebecca (Isaac's wife), and Leah and Rachel (Jacob's wives).

Jacob had a daughter, Dinah, and 12 sons. In order of their birth, they were Reuben, Simeon, Levi, Judah, Dan, Naphtali, Gad, Asher, Issachar, Zebulun, Joseph, and Benjamin. During the early centuries of their history, the Hebrews were organized into groups that traced their descent to Jacob's sons. They called themselves the *Twelve Tribes of Israel*, or Israelites. The Bible describes

how Jacob's son Joseph was sold into slavery in Egypt. Joseph's wisdom and honesty enabled him to become prime minister to the Egyptian pharaoh. Joseph invited the Israelites to Egypt after a famine struck Canaan. The Israelites lived peacefully in Egypt for many years until a new pharaoh enslaved them.

**The Exodus.** The Bible tells how a leader named Moses led the Israelites out of Egypt. According to the Bible, God helped the Israelites escape from slavery. The Jewish festival of Passover celebrates their deliverance, called the Exodus. Most scholars believe that the Exodus took place in the 1200s B.C.

According to tradition, God dictated His laws to Moses in a collection of teachings called the Torah after the Israelites left Egypt. Most scholars believe the Torah was written down much later. The Bible says that after receiving the Torah, the Israelites wandered in the wilderness for 40 years. Moses died before his people entered Canaan, but his successor, Joshua, led them into their old homeland. For about 200 years, the Israelites struggled to reestablish themselves in Canaan. They fought the Canaanites, the Philistines, and other peoples. This time is known as the period of the Judges. The Judges served as judicial and military leaders who united the Israelites in times of crisis. Deborah, Gideon, Samson, and Samuel were some famous Judges.

**The kingdom of Israel.** About 1029 B.C., the threat of warfare with the Philistines led the Israelites to choose a king, Saul, as their leader. Saul's successor, David, unified the people and founded the kingdom of Israel. Under David and his successor Solomon, the kingdom grew in size and power. David captured the city of Jerusalem from a people called the Jebusites and made it his capital. Solomon built a magnificent place of worship in Jerusalem. The Temple, known today as the First Temple, served as the centre of religious life.

**The divided kingdom.** After Solomon died in about 928 B.C., the 10 northern tribes split away from the tribes of Benjamin and Judah in the south. The northern kingdom continued to be called Israel and had its capital in Samaria. The southern tribes kept Jerusalem as their capital and called their kingdom Judah. The word *Jew* comes from *Judah*. The kings of Judah came from the

house of David. In the kingdom of Israel, there were struggles for power between various families.

During this period, religious teachers called *prophets* developed many of the principles of Judaism. The Bible contains the teachings of the major prophets, Isaiah, Jeremiah, and Ezekiel, and 12 minor prophets.

**Foreign domination.** In 722 or 721 B.C., the empire of Assyria conquered the northern kingdom. The people of Israel were exiled and scattered. They disappeared as a nation and became known as the *ten lost tribes*.

In 587 or 586 B.C., the Babylonians conquered Judah, destroyed the Temple, and took many Jews to Babylonia as prisoners. This period is called the *Babylonian Exile*. Unlike the ten lost tribes, the people of Judah did not lose their identity. Inspired by the prophet Ezekiel, they continued to practise their religion. The first *synagogues* (Jewish houses of worship) were probably developed by the Jews in Babylonia.

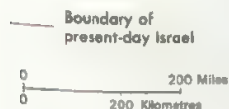
In 539 B.C., King Cyrus of Persia conquered Babylonia. The next year, Cyrus allowed the Jewish exiles to return to Judah. Many Jews returned and rebuilt the Temple, which became known as the Second Temple. However, some Jews remained in Babylonia. This was the first time since the Exodus that Jews had chosen to live outside Israel. Later, the communities of Jews scattered outside Israel became known as the Diaspora.

**The Hellenistic period.** Alexander the Great of Macedonia conquered the Persians in 331 B.C., and Judah came under his control. Alexander and his successors, the Ptolemies in Egypt and the Seleucids in Syria, brought *Hellenistic* (Greek) culture to the Jews. The Jews were allowed to follow their own religion. But in 168 or 167 B.C., King Antiochus IV of Syria tried to stop the practice of Judaism. The Jews, led by the warrior Judah Maccabee, revolted and overthrew the Syrians. The holiday of Hanukkah celebrates their victory. Judah Maccabee's family, the Hasmoneans, established an independent state that lasted about 80 years.

Under Hasmonean rule, different religious groups developed within Judaism. The groups disagreed over such matters as the *oral law*—the traditional interpretation of the Torah. The Pharisees believed God had revealed the oral law along with the Torah. Pharisees

### The land of the early Jews

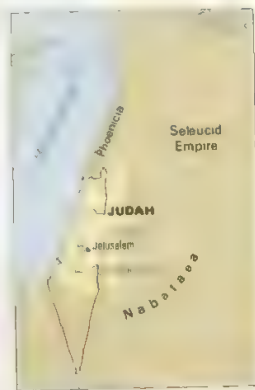
Abraham, the ancestor of the Jews, settled in Canaan (later called Palestine) between about 1800 and 1500 B.C. At first, the Jews were divided into tribes. About 1000 B.C., they united to form the Kingdom of Israel, later called Judah or Judea. These maps show the changing boundaries of the area where the Jews lived during Biblical times.



**The Kingdom of Israel** was formed about 1000 B.C. and reached the height of its power during the 900s B.C.



**The divided kingdom** resulted from a split in the 900s B.C. between Israel in the north and Judah in the south.



**An independent nation** called Judah existed in Palestine about 100 B.C. It was ruled by the Hasmoneans.



taught in synagogues and were supported by the common people. The Sadducees accepted only the Torah and found support among the rich and the temple priests. A third group, the Essenes, stressed personal holiness, through strict rules that included the sharing of property in communities apart from society.

**Roman rule.** In 63 B.C., the Romans conquered Judah, which they called Judea. Roman rule was generally harsh. The most famous ruler of Judea during this time, Herod the Great, is known for both his ruthlessness and his building activities.

Jesus was a Jew who was born in Judea. The Romans executed Jesus because they thought he was a threat to their rule. Jesus' followers, who came to be called Christians, believed that God sent Jesus to the world as the *Messiah* (Saviour). Most Jews kept their traditional beliefs and did not accept Jesus as the Messiah.

The Jews revolted in A.D. 66 and drove out the Romans for a time. But in 70, the Roman general Titus conquered Jerusalem, destroyed the Temple, and took many Jewish captives to Rome. The Western, or Wailing, Wall in Jerusalem is all that remains of the Temple.

Some Jews, called Zealots, refused to surrender even after Jerusalem fell. Many Zealots retreated to a mountain fortress called Masada, where 960 men, women, and children held out for three years. As the Romans were about to conquer the fortress, the defenders committed suicide rather than surrender.

The Jews, led by a warrior named bar Kokhba and the scholar Rabbi Akiva, rebelled again in 132 and seized Jerusalem. Three years later, the Romans crushed this final rebellion.

### The Talmudic period and the Middle Ages

**The Talmudic period.** After the defeat of bar Kokhba and Rabbi Akiva, the Romans prohibited Jews from living in Jerusalem. New centres of Jewish learning arose in Galilee, an area in northern Palestine; and in Babylonia. The Sanhedrin, the Jews' religious lawmaking body, met in Galilee. In about 200, the head of the Sanhedrin, Rabbi Judah ha-Nasi, wrote down the oral law in a book called the Mishnah. From about 200 to 500, other scholars collected interpretations of the Mishnah into a work called the Gemara. The Mishnah and the Gemara together form the Talmud. Two versions of the Talmud were created, one in Galilee (the Palestinian or Jerusalem Talmud) and the other in Babylonia (the Babylonian Talmud). See **Talmud**.

For many centuries, Jews throughout the world turned to the Babylonian Jewish community for religious and scholarly leadership. Jews sent questions of law and interpretation to scholars at Babylonian academies called *yeshivot*. The greatest such scholar, Saadia Gaon, lived in the late 800's and early 900's.

**The Jews under Islam.** In the mid-600's, Arabian Muslims founded an empire that soon included southwestern Asia, northern Africa, and Spain. The Muslims permitted Jews and Christians to practise their own religions. But both Jews and Christians had to pay a special tax and were not equal to Muslims under the law.

Large Jewish communities existed in such Muslim lands as Babylonia, Egypt, Morocco, and Yemen. But the greatest centre of Jewish culture arose in Muslim Spain. The period from the 900's to the 1100's in Spain is



Detail (about A.D. 239) from the west wall of the Second Synagogue, Dura Europos, Syria. National Museum of Damascus

**David** ruled the kingdom of Israel about 1000 to 960 B.C. Under his rule, the kingdom grew in size and power. This wall painting shows the prophet Samuel anointing David king.

known as the Golden Age of Jewish history. Jews worked in crafts, in medicine and science, and in business and commerce. Some rose to high positions in government. Outstanding writers of the time included the doctor and philosopher Moses Maimonides, the poet and philosopher Solomon ibn Gabirol, and the poet Judah Halevi.

**Jews in Christian Europe.** After the fall of the Roman Empire, the Christian Church became the most powerful force in Europe. In the early Middle Ages, the Jews lived fairly peacefully with their Christian neighbours. Many Jews became merchants. Others practised trades or owned land. Many Christians respected the Jews for their contributions to society. But some Christians blamed the Jews for the death of Jesus and mistrusted them because they would not accept Christianity. Such hatred of Jews later became known as *anti-Semitism*.

The situation of the Jews became worse beginning in 1096, when a series of military expeditions called the *Crusades* began. These campaigns to free the Holy Land from the Muslims stirred a wave of intense feeling against non-Christians. The Crusaders killed many Jews and sometimes massacred entire Jewish communities. The Crusades marked the beginning of a long period of Jewish *martyrdom* (death for a belief).

The Jews were seen by Christians more and more as outsiders. Some Christians accused Jews of bringing on the troubles of society. In the mid-1300's a terrible plague, the Black Death, swept Europe, killing about a quarter of the population. Many Christians unfairly blamed the Jews for the Black Death, and mobs killed thousands of Jews. Christians commonly accused Jews of murdering Christian children as part of their religious rituals. This accusation, which became known as the *blood libel*, was used as an excuse to attack Jews.

Political and religious leaders required Jews in certain areas to wear badges or special clothes that identified them as Jews. In many cities, Jews were forced to live in separate communities that became known as *ghettos*. Jews also lost the right to own land and to practise certain trades. To earn a living, many Jews became pedlars or moneylenders.

Beginning in the late 1200's, the Jews were expelled from England, France, and parts of central Europe. Many settled in eastern Europe, especially Poland.

To avoid persecution, some Jews in Spain and Portugal, which had become Christian countries, pretended to convert to Christianity but continued to practise Judaism secretly. These Jews were known as *Marranos*. Ferdinand and Isabella, the king and queen of Spain, established a special court called the *Inquisition* to punish people suspected of not following Christian teachings. The Inquisition used torture to force confessions from its victims, many of whom were Marranos. In 1492, Jews who had not converted to Christianity were expelled from Spain. Soon after, Jews were forced to leave Portugal. Many Jews fled to what are now Italy and Turkey. Some went to Palestine, where they studied the *Kabbalah*, the Jewish mystical tradition (see *Kabbalah*).

In the 1500's, a movement called the *Reformation* led to the development of Protestantism in Europe. It seemed that the situation of the Jews might improve. But when the Jews failed to convert to the new branch of Christianity, persecution continued.

**Eastern European religious movements.** Jewish life in Poland flourished in the 1500's. But in 1648 and 1649, the massacre of thousands of Jews in Ukraine—then a part of Poland—began a time of crisis for Polish Jews. Many hoped for someone to save them.

In 1665, a Jew named Shabbetai Zevi claimed to be the Messiah. Hundreds of thousands of Jews in Europe and the Middle East believed in Shabbetai. But Shabbetai converted to Islam, disappointing his followers.

Throughout Jewish history, learning and study had formed the foundation of Jewish life and culture. In the mid-1700's, a movement called *Hasidism* developed among Jews of eastern Europe. Hasidism, founded by a Polish teacher known as Ba'al Shem Tov, stressed joyful worship over the study of the Talmud. Most followers of Hasidism, called *Hasidim*, were ordinary people. Opponents of Hasidism, called *Mitnaggedim*, considered Hasidism's noisy praying and dancing undignified. They also looked down on the Hasidim as uneducated. Today, some Jews in Europe, Israel, and the United States still practise Hasidism. See *Hasidism*.

### The modern world

**Emergence into freedom.** At about the time that Hasidism developed in eastern Europe, a movement called the *Haskalah* (Enlightenment) arose in western Europe. The *Haskalah*, founded by German Jewish philosopher Moses Mendelssohn, called on Jews to modernize their religious thinking. The movement stressed the importance of nonreligious, as well as Jewish, education. See *Haskalah*.

As the *Haskalah* modernized Jewish religious thinking, other forces were working to free the Jews from discrimination. In France, the ideas of liberty and equality that took hold during the French Revolution (1789-1799) led many Christians to demand equal rights for all. French Jews were *emancipated* (given equal rights) in 1791. The French general and emperor Napoleon Bonaparte brought the idea of emancipation to countries outside France. By the end of the 1800's, most western and central European Jews had been emancipated.

During the early and mid-1800's, two new branches of

Judaism developed. They were called *Reform* and *Conservative*. See *Judaism* (The branches of Judaism).

**The growth of anti-Semitism.** During the late 1800's, anti-Semitism became a powerful force in European politics, especially in Germany, Austria-Hungary, and France. Many anti-Semitic writers tried to prove that Jews were inferior to Germans and other peoples of northern Europe, whom the writers called Aryans.

Jews also suffered from anti-Semitism in eastern Europe. Unlike the Jews of western Europe, those of the east had never been emancipated. In Russia, Jews were crowded in an area along the western border called the *Pale of Settlement*. Beginning in 1881, many Jews were killed in a series of massacres called *pogroms*. The pogroms caused hundreds of thousands of Jews to flee to the United States. Some fled to Palestine.

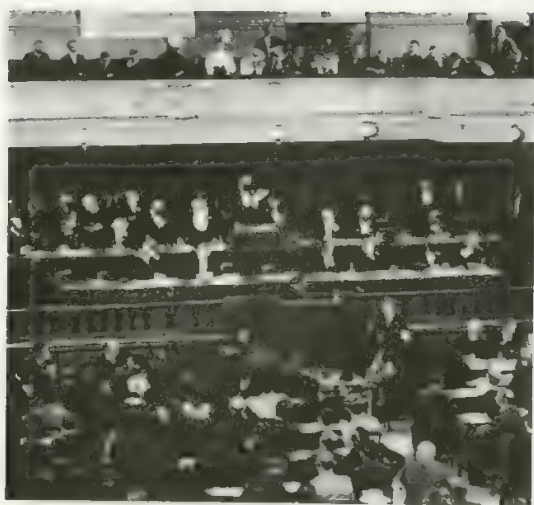
**The Zionist movement.** Many Jews saw an independent Jewish state in Palestine as the best escape from anti-Semitism. They established a movement called *Zionism* to establish such a state. In the late 1800's, Palestine was a poor, thinly populated region ruled by the Turkish Ottoman Empire. Most of its people were Muslim Arabs, though a small number of Jews also lived there. The Zionists bought land in Palestine and established farming communities. The first all-Jewish city, Tel Aviv, was founded in 1909.

In 1894, the trial of Alfred Dreyfus, a French army officer and Jew who had been falsely accused of treason, helped convince Theodor Herzl, an Austrian Jewish journalist, that Jews could never be secure until they had a nation of their own. In 1897, at the First Zionist



**Hasidism**, a movement that follows ancient Jewish customs, began in Eastern Europe in the 1700's and spread to other areas. At a Hasidic wedding, *above*, men and women dance separately.





**The Zionist movement** grew out of the Jews' longing for a national homeland. Theodore Herzl, a founder of Zionism, spoke to the Second Zionist Congress in Basel, Switzerland, in 1898.

Congress, Herzl organized the Zionist movement on a worldwide scale. See **Zionism**.

During World War I (1914-1918), many Jews in Palestine fought with the British against the Ottomans. In 1917, the United Kingdom issued the Balfour Declaration, supporting the idea of a Jewish national home in Palestine. In addition, the United Kingdom promised Arab leaders support for an Arab state. The Arabs believed this state would include Palestine.

In 1918, the British captured Palestine from the Ottomans. The League of Nations—a forerunner of the United Nations—gave the UK temporary control of Palestine in 1920. In the 1920's and 1930's, Jewish immigration to Palestine increased, despite Arab opposition. See **Palestine** (World War I and the Balfour Declaration).

**Beginnings of Nazi persecution.** Germany's defeat in World War I and a worldwide depression in the 1930's left the German economy in ruins and made many Germans angry and resentful. Adolf Hitler, leader of the Nazi Party, came to power in 1933. He blamed the Jews for Germany's troubles and began a vicious campaign against them. In 1935, the Nazis deprived German Jews of citizenship. They seized Jewish businesses and destroyed synagogues. Many Jews fled Germany. Others were trapped because no country would admit them. Most nations had restrictive immigration policies, and the depression led workers to fear that Jewish refugees would take their jobs. Beginning in 1937, the United Kingdom bowed to Arab pressure and limited immigration to Palestine.

**The Holocaust.** World War II began in 1939. The Nazis soon conquered large parts of Europe, bringing most European Jews under their domination. The Nazis then began their campaign to exterminate all Jews. Firing squads shot more than 1 million Jews. About 4 million more were killed in concentration camps (see **Concentration camp**). Many others died from disease and starvation. By 1945, about 6 million Jews had been murdered—two of every three European Jews.

Several Jewish revolts against the Nazis took place in ghettos, slave labour camps, and death camps. The most famous revolt occurred in 1943, in the Warsaw ghetto. Although the Jews were surrounded and poorly armed, some held out for about four weeks. Many Jews who managed to escape the ghettos joined bands of fighters called *partisans* who performed acts of sabotage.

In most occupied countries, the local people were indifferent to the Holocaust. Some helped the Nazis. But some non-Jewish individuals risked their lives to save Jews. Swedish diplomat Raoul Wallenberg saved about 100,000 Hungarian Jews. The Danish underground saved 7,000 Jews, most of the Jews of Denmark.

**The rebirth of Israel.** The Holocaust left the Jewish people wounded in spirit and greatly reduced in numbers. But out of the tragedy came a new determination to establish a Jewish state in Palestine. The Arabs there continued to oppose this plan, and violence often broke out between Arabs and Jews. In 1947, the United Nations recommended that Palestine be divided into Arab and Jewish states. The Jewish state, which called itself Israel, declared its independence on May 14, 1948. The next day, neighbouring Arab countries invaded Israel. Israel defeated the invaders, and hundreds of thousands of Jews flocked to the Jewish state.

The Arabs continued to oppose Israel, and full-scale wars broke out in 1956, 1967, and 1973. However, despite its constant struggle with its neighbours, Israel kept a democratic form of government and became one of the most prosperous countries in the Middle East.

**The Jews today.** Today, Jewish life continues to thrive, both in Israel and in the Diaspora. But the Jews of each face many challenges.

*The Jews of Israel* still face the threat of conflict with neighbouring Arab states. In addition, they must confront the social, military, and moral issues stemming from conflict with Palestinian Arabs living in lands occupied by Israel. See **Israel** (Recent developments).



**The Holocaust** was a vicious campaign against the Jews by the Nazis. Jews were forced to wear the Star of David, an ancient Jewish symbol, on badges or armbands, *above*.



**Israel's declaration of Independence** in 1948 led to the first Arab-Israeli war. Hours after Israeli leader David Ben-Gurion read the declaration, *above*, Arab forces invaded Israel.

**In the Diaspora.** For many years, the main centres of Jewish life in the Diaspora were the United States and the Soviet Union. In the United States, a growing number of Jews do not practise Judaism, and many know little about Jewish traditions or history. Some Jews fear that this process, called *assimilation*, will cause Jews to lose their identity. But many other American Jews are experiencing a renewed interest in their heritage.

In the Soviet Union, Jews suffered widespread discrimination. The government discouraged religious practice, and it restricted emigration to other countries. In the 1970's and 1980's, Soviet Jews attracted worldwide attention with demonstrations demanding the right to emigrate and to observe Jewish customs. In 1987, the government began to permit an increasing number of Jews to emigrate to Israel. After the Soviet Union was dissolved in 1991, Jews continued to move to Israel from the former Soviet republics.

**Related articles.** See *Israel*, *Judaism*, and *Palestine* and their lists of *Related articles*. See also:

#### History

Babi Yar	Judea
B'nai B'rith	Masada
Clothing (Ancient times)	Pharisees
Concentration camp	Sanhedrin
Essenes	Segregation
Genocide	United Nations (The Arab-Israeli wars)
Ghetto (Early ghettos)	Wallenberg, Raoul
Hasidism	Warsaw (History)
Haskalah	World Jewish Congress
Holocaust	Zionism
Jerusalem	

#### Other related articles

Anti-Semitism	Minority group
Calendar (The Hebrew calendar)	Semites
Dead Sea Scrolls	Star of David
Ethnic group	Tay-Sachs disease
Gaucher's disease	Yiddish language and literature
Hebrew language and literature	

**Jew's-harp** is a small musical instrument that is used mainly in folk music and by children. It consists of a flexible, metallic reed at one end of a curved metal frame. The other end of the reed is tapered and bent forward at a right angle. Players hold the metal frame against their teeth and make the reed vibrate by hitting its forked end with their free hand. They produce different notes by changing the size and shape of the mouth cavity.

The name has no relationship to Jews, but is probably a corrupt form of *Jaw's Harp*. Musical instruments similar to the jew's-harp have been found in various parts of



**The jew's-harp** consists of a flexible metal strip within a metal frame. A player holds the frame in the mouth and creates musical notes by striking the metal strip with the finger.

the world, including Borneo, China, Japan, and Siberia. The jew's-harp has been played in China since the 1100's and in Europe since the 1300's.

**Jhansi, Rani of** (1835-1858), an Indian queen, became famous for her military leadership in the war of independence against the British in 1857. A memorial was erected to her at Gwalior in 1928.

She was born at Kashi (now Varanasi, in Uttar Pradesh) and was named Manutai. When she married Gangadhar, the *raja* (ruler) of Jhansi in 1842, she became *rani* (queen) and her name was changed to Lakshmibai. A son born in 1851 died after four months. In order to ensure that he would have a son to succeed him after his death, the *raja* adopted a boy. This adoption was originally approved by the British political agent but was later set aside by the British governor general, Lord Dalhousie. After the *raja's* death in 1853, the British took over his state and left his adopted son to inherit only the *rani's* private estate. The *rani* felt this was unjust. In 1857, she joined other rulers who were rebelling against British rule. She showed great bravery in battles against the British at Jhansi, Kalpi, and Gwalior. She was mortally wounded at Gwalior and died in June 1858.

**Jiang Qing** (1914-1991), also spelled *Chiang Ch'ing*, was a Chinese political leader. She was married to Mao Zedong, China's top political leader, from about 1939 until Mao's death in 1976. Jiang led China's radical faction. This faction consisted of Chinese who supported Mao during the Cultural Revolution in China from 1966 to 1969 (see *China* [China after Mao]). Under Jiang's leadership, many Chinese dramas and operas were rewritten so that they presented examples of the changes in government and society favoured by Mao. In 1969, she was elected to the Politburo, the most powerful ruling body of China.



After Mao's death, Hua Guofeng and Deng Xiaoping became China's main leaders. The government of Hua and Deng publicly denounced Jiang and three of her followers—Wang Hongwen, Yao Wenyuan, and Zhang Chunqiao. The government referred to Jiang and her followers by the scornful name of the Gang of Four. It accused them of failing to follow Mao's teachings and of harming China's development. The four were removed from their positions and arrested. In 1980, the government charged them with treason and put them on trial. The four were convicted in 1981. Jiang and Zhang received death sentences. Their sentences were suspended, but they remained in prison. Wang was sentenced to life imprisonment, and Yao to 20 years. In January 1983, the sentences of Jiang and Zhang were reduced to life imprisonment. In December, Zhang died.

Jiang was born in Shandong (or Shantung) province. At the age of 15, she left home. She studied drama and acted in films in Shanghai. She joined the Communist Party in 1933.

**Jiang Zemin** (1927- ) became general secretary of the Chinese Communist Party in 1989. In theory, the general secretary is China's most influential leader. But in practice, Deng Xiaoping has the most influence (see **Deng Xiaoping**). Jiang succeeded Zhao Ziyang, who was dismissed as general secretary for supporting a movement in favour of democracy in 1989. This movement involved large demonstrations by students and other citizens in which many people were killed by Chinese troops. Also in 1989, Jiang succeeded Deng as chairman of the Communist Party's Military Commission. In 1990, he succeeded Deng as chairman of the Chinese government's Central Military Commission. Deng resigned from these posts to strengthen Jiang's ties to the military, which is dominant in Chinese politics. In 1993, Jiang was named president, a largely ceremonial government post.

Jiang was born in Yangzhou in Jiangsu Province. In 1947, he graduated from Jiatong University in Shanghai with training in engineering. In 1982, Jiang was elected to the Central Committee of the Communist Party. He was appointed mayor of Shanghai in 1985.

**Jicama** is a type of climbing vine grown for its fleshy, edible *tubers* (thick underground stems). The jicama plant is cultivated in Mexico, Central America, China, and India. It is also called *yam bean* and *Mexican turnip*. It is a *legume* (member of the pea family) and bears seeds in pods.

Each jicama plant produces from one to several tubers. The tubers are either round like beet or long and slender like icicles. Young tubers have brown skin and sweet, white flesh. They weigh 0.2 to 1.1 kilograms when harvested. People eat the tubers raw in salads or as snacks, or cooked in soups. The tubers of jicama plants are rich in calcium, iron, vitamin C, and protein.

The stems, leaves, pods, and seeds of jicama plants



The **jicama plant** is grown for its edible, nutritious *tubers* (underground stems). The tubers have brown skin and sweet white flesh. The plant bears its seeds in pods.

contain a chemical compound called *rotenone* and may be poisonous. Rotenone is a natural insecticide and so jicama plants resist insect attack.

**Scientific classification.** Jicama plants belong to the pea family, Leguminosae (Fabaceae). The most common species is *Pachyrhizus erosus*.

**Jidda** (pop. 1,210,000) is the chief seaport and air terminal of Saudi Arabia. It lies on the eastern shore of the Red Sea. For location, see **Saudi Arabia** (political map). It is also spelled *Jeddah* and *Juddah*.

Jidda serves as the gateway to the Muslim holy cities of Mecca and Medina. Muslim pilgrims from throughout the world pass through Jidda on their sacred journeys to these cities.

Jidda developed as Mecca's seaport during the A.D. 640's. Today, the city ranks as one of Saudi Arabia's major business and industrial centres. Most of the country's banks have their headquarters in Jidda. The city's most important industries include oil refining, paper manufacturing, and shipbuilding. King Abdul Aziz International Airport, one of the world's largest airports, opened in Jidda in 1981.

See also **Saudi Arabia** (pictures).

**Jigger.** See **Chigger**.

**Jiménez, Juan Ramón** (1881-1958), a Spanish poet, won the 1956 Nobel Prize for literature. His masterpiece, *Platero and I* (1914), is an account of life in the Spanish town of Moguer. The author tells the story while chatting with his donkey. In *Platero and I*, Jiménez uses a simple style typical of his later works.

Juan Jiménez identified himself with nature and showed an awareness of God's eternal presence in his poetry. He was born in Moguer. He left Spain during the Spanish Civil War in 1936 and lived in North and South America until his death.

**Jiménez de Quesada, Gonzalo** (1497?-1579), was a Spanish conqueror. He established the first Spanish settlement in the interior of the area now known as Colombia in South America.

Quesada was born in Granada, Spain. He became a lawyer. Quesada travelled to the Americas in 1536. Later



Jiang Zemin

that year, he left the settlement of Santa Marta on the Caribbean coast of Colombia and led an expedition up the Magdalena River (see **Colombia** [map]). In 1537, the group reached the plain inhabited by the Chibcha Indians. By 1538, Quesada's party had defeated the Indians and gained control over the area. Quesada founded the town of Santa Fe (now Bogotá). He named the region New Granada after the town where he was born. Quesada spent the rest of his life in the region.

**Jimmu Tenno**, also called *jimmu*, was supposedly the first emperor of Japan and founder of the family that has ruled Japan throughout its history. According to folk tales, he led a force of men from Kyushu in southwestern Japan to Yamato, the area surrounding Nara and Osaka. In 660 B.C., he became emperor. The tales are not wholly true, but a force from the southwest did form a strong government in Yamato. Although Jimmu Tenno may have existed, it is believed the Yamato state was founded several centuries after 660 B.C. See also **Mikado**.

**Jimsonweed**. See **Datura**.

**Jindyworobak**. See **Australian literature**.

**Jingoism** is an attitude of boastful, warlike patriotism. A person who takes such an attitude is called a *jingo*. The term originated in the United Kingdom (UK) during the 1870's. The UK government, headed by Prime Minister Benjamin Disraeli, hesitated to interfere in a war between Russia and Turkey. The term *jingo* came from this stanza in a song sung in a London music hall:

We don't want to fight,  
But, by jingo, if we do,  
We've got the ships,  
We've got the men,  
We've got the money, too.

See also **Patriotism** (Abuses of patriotism).

**Jinnah, Muhammad Ali** (1876-1948), was a leader in India's struggle for independence. He has been called *Quaid-i-Azam* (the great leader) and the *founder of Pakistan*. He led Muslim demands for separation from the Hindu majority in India. When Pakistan was created as an independent Muslim-majority nation in 1947, Jinnah became its first governor general.

**Early life.** Muhammad Ali Jinnah was born in Karachi. He was the eldest son of a wealthy merchant family. As a youth, he displayed outstanding intellect by qualifying for the University of Bombay at the age of 16. But his father chose to send him to the United Kingdom instead. He was married before his departure.

Jinnah arrived in London in 1892. He studied law and qualified as a barrister at the early age of 19. While he was away, his wife and his mother died. Jinnah returned to Karachi in 1896 and found that he could no longer make a living from his father's business. In 1897, Jinnah began to practise law in Bombay, and continued for about ten years. During this period, he served as acting magistrate of Bombay for six months.

**Political career.** In the period between 1900 and 1916, Jinnah became a great political leader. In 1906, he joined the Indian National Congress. In 1910, he became a member of the Imperial Legislative Council. He also became president of the Bombay branch of the Indian Home Rule League.

In 1913, Jinnah joined the Muslim League. This organ-

ization had been established in 1906 and aimed to protect the interests of Muslims. The Muslim League felt that Hindus, who were the majority of India's people, would dominate independent India. Jinnah joined the Muslim League on the assumption that it would be as committed as Congress in fighting for India's independence. He was not interested in simply improving the position of Muslims under the rule of the United Kingdom.

Within three years of joining the Muslim League, Jinnah became its president. He became widely known as "the ambassador of Hindu-Muslim unity." But Jinnah's political progress suffered when Mohandas Gandhi arrived on the Indian political scene. Gandhi rejected Jinnah's lawful and constitutional methods of protest. He favoured direct action through noncooperation, boycotts, and other forms of civil disobedience. See **Gandhi**, **Mohandas Karamchand**.

In 1918, Jinnah married again. His marriage to Ruttanbai, daughter of Sir Diashaw Petit, proved to be an unhappy one. The couple separated and, in 1929, Ruttanbai died. Jinnah depended on his sister, Fatima, for companionship and support for the rest of his life.

As a result of his disagreement with Gandhi's methods, Jinnah resigned from both Congress and the Home Rule League in 1920. Instead, he relied on the Muslim League to promote his commitment to law and order, and Hindu-Muslim unity. Gandhi's policy of noncooperation seemed to have little effect, and relations between Hindus and Muslims worsened. Jinnah tried to restore harmony between the two communities. He drew up a 14-point programme to safeguard minority rights, especially those of Muslims, within a federal framework. But in 1928, a committee headed by the Indian leader, Jawaharlal Nehru, refused to grant even minor concessions to Muslims in provincial legislatures.

Some Muslims thought that Jinnah was not being assertive enough. The Punjab region rejected his leadership and broke away to form a separate unit. Jinnah felt frustrated, and, in 1931, exiled himself in London. During his period in exile, two things happened that made him return home. In 1933, Liaquat Ali Khan begged Jinnah to take over the leadership of the Muslims of India. The



**Muhammad Ali Jinnah**, right, founder of Pakistan, attended the partition conference in 1947, together with, left to right, Jawaharlal Nehru, Lord Ismay, and Lord Mountbatten, then viceroy of India.



political climate was changing, and it looked likely that Indians would have greater participation in their country's political life. In 1934, Jinnah returned to his homeland. The Government of India Act was passed in 1935, confirming greater Indian participation in government. In the 1937 elections, Congress won outright majorities in six provinces and installed all-Congress governments. It then refused to join the Muslim League in any form of coalition.

**Toward a Muslim state.** Jinnah seized the opportunity to stir up mass discontent. He transformed the Muslim League from a demoralized debating society into a dynamic political movement. At Lahore in 1940, the Muslim League adopted a resolution that called for the formation of a Muslim state separate from India. The state was to be called *Pakistan*. Congress fought the proposal.

The British acknowledged that independence would be inevitable after World War II (1939-1945). The British wished the country to remain a single political unit. But they also needed Muslim support for the war effort. Jinnah was determined to have a separate Muslim state and did not give in. In the end, his opponents agreed to his demands, and the new nation of Pakistan was born in August 1947. Jinnah became the first governor general of the country, but died a little more than a year later, worn out by overwork.

See also *India, History of; Pakistan (History)*.

**Jinrikisha**, also called *ricksha* or *rickshaw*, is a light two-wheeled cart once widely used as a public vehicle in Japan, China, and other countries of East Asia. Jinrikisha means *human-powered vehicle* in Japanese. It usually had a top, or hood, to protect passengers from the weather. The runner, or *hiki*, ran between the shafts and often pulled passengers 30 to 50 kilometres a day. The jinrikisha was first used in Japan in about 1870. The jinrikisha was once a popular taxicab in the cities of East Asia, but foot-powered tricycles called *pedicabs* are replacing jinrikishas. The use of jinrikishas was declared il-



The jinrikisha was once a popular form of public transportation in cities throughout Eastern Asia.



Jivaro Indians live in the tropical forests of Ecuador in South America. Jivaro hunters, above, use blowpipes.

legal in many Chinese cities because authorities felt using "human horses" was undignified. Today, pedicabs have been largely replaced by cars in the major cities of East Asia.

See also *Pedicab*.

**Julong.** See *Kowloon*.

**Jiva.** See *Jainism*.

**Jivaro Indians** are a tribe famous for their fierceness and for their head shrinking. They live in the montaña region of eastern Ecuador. Although the Jivaro are spoken of as a tribe, they are split into many small groups which used to fight among themselves.

In early times, the Jivaro lived like tropical-forest Indians of the Amazon Valley. They planted maize, tobacco, and *cassava*, a root crop. They hunted with blowpipes and darts and with spears. The Jivaro fished with traps and with *barbasco*, a drug that stupefies fish so they can be speared easily. The Inca of Peru probably taught the Jivaro how to keep llamas and guinea pigs. Jivaro men usually wore a wrap-around skirt and sometimes a poncho. Jivaro women wore a full-length robe or dress.

A typical Jivaro village had only one large dwelling, which housed 40 to 80 people. Each village might be fortified with trenches filled with spears. The Jivaro were famous warriors, who fought mainly to avenge the death of a relative. A victorious warrior beheaded his victim and shrank the head. This *tsantsa* became a trophy.

About 10,000 Jivaro live in Ecuador today. Most of them have given up warfare and live peaceably among themselves and with their neighbours.

See also *Headhunter*.

**Joan of Arc, Saint** (1412?-1431), was a French national heroine who became a saint of the Roman Catholic Church. She was a simple peasant girl who rescued France from defeat in one of the darkest periods of the Hundred Years' War with England. Her first great triumph was to lead a French army against the English who had laid siege to the city of Orléans. She has often been called the Maid of Orléans in honour of that victory.

**Joan's mission.** Jeanne d'Arc, as she was known in France, was born at Domrémy, near Nancy. She was a strong and healthy child. Like most peasants of her time, she never learned to read and write. She grew up as a devout Catholic under the strong influence of her



Detail of an illuminated manuscript (about the 1400s) by an unknown artist; Archives Nationales, Paris

**Joan of Arc**, a national heroine of France, believed that God had chosen her to free her country from English rule.

deeply religious mother. The girl called herself Jeanne la Pucelle (Joan the Maid). Some historians believe that Joan may have been a *clairvoyant*—that is, a person who has knowledge of events happening far away or in the future without using any of the five senses. By the age of about 13, Joan was having religious visions and hearing what she believed were the voices of saints.

These voices in time persuaded Joan that God had chosen her to help King Charles VII of France drive the English from French soil. She went to the town of Vaucouleurs to ask the military commander for an escort of a few men because she had to see the king. At first, the commander laughed at her. But he finally gave her what

she wanted. Early in 1429, at the age of about 17, she left to fulfil her mission.

**Joan sees the king.** The people in southern France had recognized young King Charles VII as their ruler since 1422. But his enemies, the English and the *Burgundians* (French citizens who supported the English), controlled Paris and the northern part of France. The people there did not accept Charles as their king. Charles had never been crowned, because the city of Reims, where French kings were crowned, lay in enemy territory. In addition, the quarrels of his advisers paralysed his government, and the treasury was empty. If the English captured Orléans, Charles's position would be desperate. His situation was so hopeless that he was willing to listen to the young girl who had arrived at his castle in Chinon claiming to have heard the voices of saints.

But first, Charles tested Joan. Slipping into the ranks of his courtiers, he let one of his nobles occupy the throne. Joan, however, was not deceived, and quickly identified Charles as her king. Even then, Charles was doubtful. But when she told him exactly what he had asked of God when he prayed alone, he realized that she possessed unusual powers. People at that time often feared that such powers were the work of the devil. But learned members of the clergy examined and accepted Joan's beliefs, and so Charles gave her armour, a banner, and the command of troops.

**Joan's military career.** Joan set out with her army in April 1429 to rescue Orléans from the English. At first, the French commanders hesitated to obey her. However, they soon realized that all went well when they followed her orders, and that things went wrong when they disregarded them. Joan's forces broke the siege of Orléans in only 10 days, and the English fled.

After this victory, she persuaded Charles of the need for a coronation. To a deeply religious person like Joan, Charles was not a true king until he was crowned in the cathedral at Reims. She led Charles and his military escort through enemy territory, and her troops defeated the English in several battles along the way. Joan entered the city in triumph and stood beside Charles when he was crowned king on July 17, 1429.

After the coronation, Joan became anxious to free Paris from English control. The king doubted her chance



Details of illuminations from *The Vigils of Charles VII* (about the 1400s) by an unknown artist; Bibliothèque Nationale, Paris

**Joan led the French to victory** in five battles against the English. The Maid of Orléans was hailed as a military genius.



**Joan was burned at the stake** by the English in 1431 after being captured and tried as a witch.



of success at this time, but he allowed Joan to make an attempt on Paris. In September 1429, Joan was wounded in a minor battle near Paris. In May 1430, the Burgundians captured her at Compiègne. Although important prisoners could bring high ransoms, the English were determined not to give her up to the French. They acquired her from the Burgundians for a large sum.

**Joan's trial and death.** The English saw Joan as an agent of the devil. They imprisoned her and tried her on charges of witchcraft and *heresy* (disbelief in the accepted religion). Despite the bullying of her English captors, she continued to insist that her visions and voices had come from God. However, a tribunal of French clergy sympathetic to the English sentenced her to death.

Joan was burned at the stake before a large crowd in Rouen on May 30, 1431. Her courageous death led many to fear that they had witnessed the martyrdom of a saint. Because heretics could not receive a Christian burial, Joan's ashes were thrown into the Seine River.

In 1455, Joan's family asked for a new trial to reconsider the charges against Joan. Pope Callistus III granted a hearing. In 1456, he pronounced Joan innocent. Pope Pius X beatified her in 1909. Beatification is a preliminary step toward *canonization* (sainthood) in the Roman Catholic Church. Pope Benedict XV declared Joan a saint in 1920. Her feast day, the day of her death, is May 30.

**The memory of Joan of Arc.** The works of many authors deal with the life of Joan of Arc. Friedrich Schiller, a German poet and playwright, wrote the drama *The Maid of Orléans* (1801). *Saint Joan* (1923), a famous play by Irish-born playwright and critic George Bernard Shaw, shows Joan as a woman with Protestant beliefs who opposed the authorities of the Catholic Church.

Joan of Arc is admired by patriots, supporters of women's rights, and even people who study the supernatural. She is also memorialized in monuments and works of art throughout the world. Joan remains a mysterious figure, however. Even during the 1400's, some people claimed that another person had died in her place at Rouen.

**Joaquin, Nick** (1917- ), the foremost Filipino author writing in English, was honoured as a "national artist" by the government of the Philippines in 1976. Nicknamed *Marquez Joaquin* was born in Manila. He was orphaned at the age of 13 and had to earn a living. He worked as a baker's assistant, a printer's assistant, a factory watchman, and a theatre property man. Joaquin started writing at the age of 17, and became a staff member of the *Philippines Free Press*, the leading weekly Filipino news magazine in English. Joaquin wrote on crime, history, politics, popular culture, religion, show business, and many other subjects under the pen name of *Quijano de Manila*. Joaquin also wrote novels, plays, short stories, and verse.

**Job, Book of,** is a book of the Bible. Jewish editions of the Bible place the Book of Job in a series of books called the *Writings*. Christian editions place the book in a group called *Wisdom* books. The Book of Job is named after its central figure, a pious and upright man. The book raises a number of important religious questions. These questions include why righteous people suffer and why evil exists in a world that is governed by an all-powerful God.

The Book of Job consists of a prologue in prose (chapters 1-2), a series of dialogues in verse (3: 1-42: 6), and a prose epilogue (42: 7-17). In the prologue, God allows Satan to test Job's faith by inflicting a series of misfortunes on the man. In the dialogues, Job's friends cannot believe that his misfortunes are undeserved, and they urge him to repent. But Job firmly insists that he is innocent of sin. God then appears to Job in a whirlwind and criticizes Job for daring to question His will. Job finally realizes that he is nothing compared to God. Job accepts God's judgment of him even though he cannot understand it. In the book's epilogue, God restores Job to prosperity.

There have been numerous interpretations of the Book of Job. Many scholars believe that the book teaches that there is no direct relationship between right actions and reward in human history. Humanity can question God's will but never truly understand God's ultimate design.

The present form of the Book of Job dates back to the period from the 600's to the 400's B.C. However, the story may go back as far as 1,000 years earlier.

See also *Bible* (The Old Testament).

**Jobim, Antonio Carlos** (1927- ), is a Brazilian composer, pianist, and arranger of popular music. He became known for the song "The Girl from Ipanema," which was a worldwide hit in 1964. The lyrics for the song were written by the Brazilian poet Vinícius de Moraes. Other songs by Jobim, including "Waters of March" and "Wave," also achieved worldwide popularity.

Jobim was the leading composer of the style called the *bossa nova*. This is a Brazilian form of dance music that combines the rhythm of the samba with complex arrangements and harmonies of jazz music. The bossa nova began in Brazil during the 1950's and spread to the United States in the 1960's. Jobim's songs were recorded by many American musicians including Frank Sinatra and Stan Getz. Jobim also composed music for film and the stage.

Antonio Carlos Brasileiro de Almedia Jobim was born in Rio de Janeiro. He is sometimes called *Tom* or *Ton* Jobim. He moved to New York City in 1987.

**Job's tears** is a type of tall grass that grows in tropical climates. The name refers to the curious bead-like or tear-like swellings on the plants that contain the ripe seeds. Job's tears is closely related to maize, and some people in Asia grow the plant for grain. In Japan, people use the seeds to make tea.

**Scientific classification.** Job's tears belongs to the grass family, Gramineae (Poaceae). It is *Coix lacryma-jobi*.

**Jockey.** See *Horse racing* (Jockeys).

**Jodl, Alfred**, (1892?-1946), signed the unconditional surrender of Germany in Reims in 1945. At that time, he was chief of the Operations Staff of the German Armed Forces High Command. He was an admirer of Napoleon, and helped Adolf Hitler imitate him. Jodl, though a brilliant man, was a tool of Hitler. As personal military adviser to Hitler, he failed to try to curb the dictator's evil ambitions. Jodl was executed for war crimes committed during World War II. He was born in Bavaria.

**Jodrell Bank Observatory**, near Manchester, England, is one of the world's largest radio astronomy observatories. The first giant radio telescope began operating there in 1957. Jodrell Bank attracted worldwide

attention by tracking the first space satellite, Russia's *Sputnik I*. The observatory later tracked many other spacecraft. Astronomers at Jodrell Bank have been pioneers in radar studies of meteors and the moon. These scientists have discovered and studied several celestial objects called *pulsars* (see *Pulsar*). They also have mapped and studied cosmic radio sources.

The official name of the observatory is the Nuffield Radio Astronomy Laboratories, Jodrell Bank. The observatory serves as a research and teaching department of the University of Manchester. The main radio telescope at the observatory has a dish-shaped aerial 76 metres in diameter.

See also Lovell, Sir Bernard.

**Joel, Book of**, is a book of the Bible named after an Israelite prophet. It is included in a collection called the *Prophets* in both Jewish and Christian editions of the Bible. The book contains no specific historical references, but scholars believe it dates from about 450 B.C., after the *Babylonian exile*. The exile was a period of about 50 years that followed the Babylonian conquest of the Israelite kingdom of Judah in 587 or 586 B.C.

The Book of Joel is divided into two parts. Part one (chapters 1-2: 27) describes a plague of locusts that leaves the land barren. Many scholars believe the account refers to an actual plague, which Joel believed was a warning of God's anger against His sinful people. The prophet calls upon the priests, the elders, and the people to repent their sins and seek God's mercy to end the plague. Part two (chapters 2: 28-3: 21) concerns Joel's prophecy of the Day of the Lord, or Judgment Day, in which only the faithful will be saved. Israel will be restored to its land, which will be fruitful again. God's anger will pour down on all others, especially the heathens who exiled the Israelites.

See also Bible (The Old Testament).

**Joey.** See Kangaroo.

**Joffre, Joseph Jacques Césaire** (1852-1931), commanded the French armies during the early part of World War I (1914-1918). Joffre's reputation grew when he defeated the Germans in the First Battle of the Marne in 1914. He was the first French general to defeat a German army in a major battle since Napoleon Bonaparte did so in the early 1800's. His victory ended Germany's hopes to defeat France quickly.

By 1915, the opposing armies had reached a stalemate on the Western Front. Joffre attempted to break the stalemate with offensives in Artois and Champagne, but they were costly failures. In December 1916, the French government replaced Joffre because it thought he was wasting French strength in exchange for minor gains. Joffre was named marshal of France and given largely ceremonial duties.

Joffre was born in Rivesaltes, near Perpignan. He interrupted his engineering studies to serve in the Franco-Prussian War (1870-1871). After a career spent mainly in the French colonies, Joffre was promoted to chief of the general staff in 1911.

**Joffrey, Robert** (1930-1988), was an American ballet teacher and *choreographer* (composer of dances). Joffrey's own ballets include *Pas de Déesses* (1954), *Gamelan* (1962), and *Astaire* (1967). His company also performs ballet classics, such as Leonide Massine's *Le Beau Danube*, Sir Frederick Ashton's *A Wedding Bouquet*,

and Kurt Jooss's *The Green Table*, as well as such modern works as Twyla Tharp's *Deuce Coupe*.

Joffrey was born in Seattle, Washington. He taught at the High School of Performing Arts in New York City from 1950 to 1955. Joffrey formed a school, the American Ballet Center, in 1953 and also taught there. He created the Robert Joffrey Ballet in 1956. In 1966, it was named the official ballet company of the New York City Center and also of the Los Angeles Music Center in 1983.

See also Ballet (Scenery; picture: *The Clowns*).

**Jogging** is a popular form of exercise and recreation in which a person runs at a steady, moderate pace. The actual pace depends on the individual's ability, but it should be one at which the jogger can talk without becoming breathless. Since the mid-1960's, millions of people all over the world have started to jog. The popularity of jogging stems from its health-giving benefits and its simplicity. The only equipment needed is loose clothing and cushioned, well-fitting, flexible shoes.

Jogging builds and maintains physical fitness by improving the function of the circulatory and respiratory systems. It strengthens leg muscles and aids in weight control. Jogging also helps relieve mental stress and provides an opportunity to enjoy the outdoors.

To obtain the full benefits of jogging, an individual should develop a programme that includes at least three jogs of 3 kilometres every week. An inexperienced jogger should start with short distances and gradually work up to 3 kilometres or more. At first, brisk walking may be substituted for periods of jogging. People more than 35 years old should have a complete medical examination before starting a jogging programme.

See also Running.

**Jogues, Saint Isaac** (1607-1646), a Jesuit missionary, preached among the Huron Indians in Canada. He was an early visitor to the settlement of Sault Sainte Marie. Iroquois Indians captured him in 1643, but he escaped from them. He visited Europe, then returned to Canada. A Mohawk Indian clan killed Jogues and another priest. Jogues was *canonized* (made a saint) in 1930. He was born in Orléans, France.

**Johannesburg** (pop. 828,000; met. area pop. 2,747,000) is a city in South Africa. Johannesburg has the country's largest metropolitan area population, and is considered the largest city in South Africa. Johannesburg is the capital of Gauteng province in the northeast of the country. It lies in the heart of the *Witwatersrand* (Ridge of White Waters), the richest gold field in the world. For the location of Johannesburg, see *South Africa* (political map).

Nearly two million people live in Soweto, southwest of Johannesburg. This town was set up in the 1940's to house people forcibly removed from Johannesburg under the former policies of *apartheid* (ethnic segregation). See *Apartheid*; *Soweto*. Many of Soweto's residents commute to Johannesburg each day to work.

The Witwatersrand on which Johannesburg stands is a ridge that serves as a *watershed* (the dividing line between adjacent river systems). Several streams run off the watershed. Rain falling north of the ridge runs into the Indian Ocean, and south of the ridge it runs into the Atlantic Ocean. The city's high altitude gives it a mild climate. Summers are warm and winters are cold to mild. The surrounding vegetation is mainly grassland with



# Johannesburg *Heart of the Witwatersrand:* *A golden metropolis.*

Lies in northeastern South Africa. After Cape Town, ranks second in population (900,000). Metropolitan area population (2,700,000) highest in nation.

Located in Witwatersrand, richest gold field in world. City founded in 1886, when prospectors discovered gold. Gold industry has built Johannesburg into South Africa's most important commercial and industrial city. Rich South African mineral deposits, including coal and iron, supply fuel and raw materials for machinery and heavy industries.



**Tribal dancers, above,** move with precision to pulsating beats while performing traditional dances. People from many tribes work in gold mines in the Johannesburg area. Tourists enjoy dancing performances at Gold Reef City, a working mine and reconstruction of the city's gold rush days.

**Carlton Centre, left,** in central Johannesburg, ranks as one of the city's tallest buildings. On the 50th floor is Carlton Panorama, a 201-metre-high observation deck. The view encompasses the beauty and contrasts of Johannesburg—from mining structures to imaginative modern architecture, such as the Carlton Hotel, *right*. In the centre of the city is the headgear of a working gold mine, *far left*. It symbolizes the industry upon which Johannesburg was built. In 1886 prospector George Harrison found gold in the area. A frenzied gold rush followed, and the gold mining industry was soon born. Gold has made Johannesburg the nation's centre of industry and commerce.



**1886**

City founded as a mining camp when Witwatersrand gold field was discovered. Miners and others rushed to the area.

**1887**

Joubert Park laid out—oldest park in city. Includes open-air chess board, tropical plant house, and a restaurant. Site of Johannesburg Art Gallery.

**1890**

Johannesburg Public Library opened. It includes a valuable collection of early editions. Library also houses the Africana Museum, a storehouse of historical items. The museum opened in 1935.



**A plaza fountain sculpture, above,** represents a herd of leaping impala. These swift, graceful antelope live on grasslands in the Eastern and Northern Transvaal.

**The Rissik Street Post Office, below,** built in 1897, ranks as one of Johannesburg's oldest buildings. One storey was added in 1902, to celebrate the coronation of King Edward VII of England.



Museums of Johannesburg cover wide range of subjects. Africana Museum, in Johannesburg Public Library, houses historical and geological items.

Johannesburg Art Gallery includes collections of South African, British, Dutch, and French art.

Native plants—aloes, proteas, irises, African daisies—abound in city parks and gardens. Magnificent trees and large rose garden at Johannesburg Botanic Garden. Lion Park outside city features lions, zebras, springboks, wildebeests, and other animals.

**1915**

**City Hall**, begun in 1910, was completed. Located on historic Rissik Street. City Hall organ, one of South Africa's largest, has been in use since 1916.

**1922**

**University of the Witwatersrand** was established at the site of a training institute for the diamond mining industry. Original institution dated to 1896.

**1986**

**Gold Reef City** opened—a major attraction. Visitors may explore underground workings of a gold mine. Other attractions include mine dancing and pioneer shops.





scattered trees. There are a number of dams and lakes in the area. Many of them are the result of earlier mining operations.

### City

Johannesburg is one of the most modern and prosperous cities in South Africa. It is the hub of South Africa's commercial, financial, industrial, and mining undertakings. The city, known to many as "Jo'burg," owes its origin to the discovery of gold in 1886. It is often called *Egoli*, a Zulu name meaning "City of Gold." Johannesburg was named after two men—Johann Rissik, principal clerk of the office of the surveyor general of the Transvaal Republic, and Christiaan Johannes Joubert, chief of mining and member of the *Volksraad* (parliament). Johannesburg is one of the world's highest cities. It lies 1,740 metres above sea level on the *Highveld*, South Africa's interior plateau.

Johannesburg is part of a larger urban region. It is closely linked with several *satellite towns* (smaller subordinate towns). Randburg (established in 1959) and Sandton (1966) form part of the northern area. The east and west ridges spread out from central Johannesburg. The Central Business District (CBD), south of the main ridges, covers an area of 6 square kilometres. It consists of closely packed skyscrapers. The Carlton Centre is Africa's tallest office building.

Johannesburg is a modern and exciting city. Many of the city's older buildings have been pulled down, and modern structures have been built in their place. North of the CBD is Hillbrow, the most densely populated residential area in southern Africa. Thousands of people live in its towering blocks of flats. Northwest of the CBD is Braamfontein, a secondary CBD housing many offices and business premises. In the 1980's, many of Johannesburg's offices and commercial activities were relocated in suburbs such as Parktown, Rosebank, and Doornfontein, and in adjoining municipalities such as Sandton and Randburg. The Oriental Plaza, west of the CBD, is a unique Indian shopping complex.

Johannesburg's residential areas range from luxurious, well-wooded suburbs to shanty towns and squatter settlements. Alexandra, a township northeast of the city centre, is home to about 125,000 people. It was established by workers who migrated from rural areas in the late 1930's.



Johannesburg grew rapidly in the early 1900's. This photograph shows Rissik Street, about 1904.



A street in Johannesburg is lined with modern office buildings. The city is South Africa's main business centre.

Since the 1980's, large numbers of people have moved to Johannesburg in search of work. A lack of housing in the city has forced many to set up squatter settlements on the outskirts of the suburbs. Most communities lack electricity and running water, and residents generally live in makeshift shacks built from scrap metal, board, and other discarded materials. In some settlements, such as Phola Park south of Johannesburg, town planners have attempted to lay down streets and provide residents with basic amenities. Most of Johannesburg's industrial areas lie to the south of the city.

Dumps left behind by early gold miners are a feature of Johannesburg. Some have been *greened* (improved by planting and landscaping). Others are being re-worked to extract any gold that may be still there. The city also has a number of parks, reserves, and walking trails.

### People

The people of Johannesburg are drawn from a variety of different cultures, and come from many parts of the world. The first gold rush attracted prospectors from many different countries. By 1900, more than 10,000 Indian migrant workers had made their homes in Johannesburg. In 1904, Chinese labourers arrived to work under contract in the gold mines. Today, people of African ancestry outnumber all others. Many are Zulu; others are South Sotho, Tswana, Xhosa, and North Sotho. Many people are second or third generation citizens and no longer have any links with their traditional, rural past.

Of the remaining one-third of Johannesburg's population, some people speak English as their first language, and some are Afrikaans-speaking. People of Asian ancestry and immigrants from other African countries make up a small minority of the population.

**Education and culture.** Johannesburg has three universities. The University of the Witwatersrand, established in 1922, grew out of the School of Mines and Technology. The Rand Afrikaans University was established in 1968 and moved to its new campus in 1975. Vista University was established in 1981. It has four campuses in Gauteng, including a large campus in Soweto.

Johannesburg also has three teacher-training colleges and a technical college. There are numerous kindergartens, and primary and secondary schools in the region.

Libraries, galleries, and museums are plentiful. Specialist museums cover such subjects as Africana, costume, fossils, geology, military history, pharmacy, photography, and railways. Gold Reef City, a living museum, was originally part of the Crown Mines complex, where gold was mined to a depth of 3,000 metres. The Market Theatre stages plays, comedy shows, and musical performances. The Civic Theatre complex hosts drama, opera, and ballet. Concerts are held in the City Hall. Ellis Park is a venue for international sporting events.

### Economy

Johannesburg is the commercial, financial, and industrial centre of sub-Saharan Africa. Almost half of the working population is employed in service industries and manufacturing. Other sources of employment are building trades, commerce and mining, electricity supply, transportation, and water supply. The city's economy was originally based on gold, but over the years it has developed and become varied.

Many of Johannesburg's service industries are in some way associated with gold mining, including banks, the Chamber of Mines, mining houses, and the stock exchange. The Johannesburg Stock Exchange has the largest gold share market in the world. Johannesburg has more shops than any other South African city. Eastgate Centre, to the east of the city, is the largest shopping complex in the Southern Hemisphere.

**Transportation.** The South African Transport Services are located in Johannesburg. More than 4 million passengers a year pass through Johannesburg International Airport. Johannesburg is also a road and rail pivot for southern Africa.

### Government

The Johannesburg City Council runs the city's municipal services from the Civic Centre on Braamfontein Hill. The council grew out of the Sanitary Board and Digger's Committee in 1887, and was formally established in

1903. Its first permanent home was the City Hall, completed in 1915. Water comes mainly from the Vaal Dam, and electricity from Escom power stations in the eastern Transvaal. Johannesburg General Hospital is the biggest and most modern in South Africa.

### History

Archaeologists in the Johannesburg area have discovered the remains of a complex of Iron Age villages, dating from about 1100 B.C. A wave of new settlers arrived in the 1200's, and villages were thriving by the 1500's. Those early settlers were mostly Tswana. The first settlers of European ancestry moved into the Transvaal in the 1830's. The first traces of gold were discovered in the 1850's.

In 1886, an Australian prospector called George Harrison discovered a gold-bearing reef on the Langlaagte farm. It was the signal for the greatest gold rush in the history of the world. Public gold diggings were declared, and fortune seekers flocked to the region, rapidly building a tent and hut community on the site. On Oct. 4, 1886, a town was proclaimed and laid out on the Randjeslaagte farm. Eleven years later, Johannesburg was declared a municipality. In 1928, it became a city.

When Gauteng Province was created in 1994, Johannesburg was named as the province's capital. In the same year, the city authorities began discussions aimed at establishing a single metropolitan government for Johannesburg, Soweto, and other parts of the central Witwatersrand.

#### Related articles in *World Book* include:

Afrikaans language	Gordimer, Nadine	Tswana
Gold (picture:	Oppenheimer (Sir	Witwatersrand
South African miners)	Ernesti	Xhosa
Gold rush	Paton, Alan	Zulu
	Sotho	

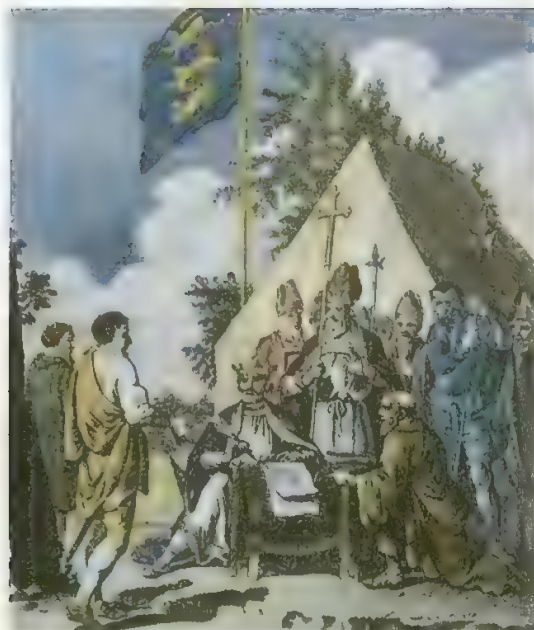
**John** (1167?-1216), often called John Lackland, was one of England's most unpopular kings. His barons forced him to grant the famous charter of liberties, *Magna Carta*, in 1215. He was often cruel, but showed administrative and military ability.

John was the youngest son of King Henry II. He succeeded his brother Richard the Lion-Hearted as king of England and duke of Normandy in 1199. His rule began badly. By inept politics and the murder of his nephew Arthur, he lost the allegiance of many of his French barons. King Philip Augustus of France then declared war. In 1205, John was beaten and lost all of the English holdings in France except the region of Aquitaine.



**Modern Johannesburg** is one of the most prosperous cities in Africa. Busy highways lead into the Central Business District, with its towering office buildings.





Colour engraving (1700s)

**King John of England** granted the Magna Carta in 1215. The famous charter marked the beginning of democracy in England.

John pursued a policy in England that brought him into conflict with Pope Innocent III. In 1208, the pope placed England under an *interdict*, which banned church services throughout the country. The following year John was excommunicated.

The king then showed his capacity for strong rule. He forced Scotland into a subordinate position, kept the Welsh princes in check, and held a firm grip on Ireland. But his foreign favourites, professional troops, and autocratic financial policy stirred up discontent among the English barons. When John failed to reconquer the lost French territories in 1214, most of the barons and many of the clergy revolted. On June 15, 1215, the king was forced to approve the Magna Carta at Runnymede meadow beside the River Thames.

A few months later, John fought the barons. They were aided by Prince Louis of France, heir to Philip Augustus, and appeared certain to win. But John penned his enemies in London and the adjacent counties. He died suddenly in 1216, but his throne was saved for his son, Henry III.

See also **Innocent III**; **Magna Carta**; **Philip (III) of France**; **Richard (I) of England**.

**John II**, a king of Portugal. See **Columbus**, **Christopher** (First attempts to promote his plan).

**John III Sobieski** (1624-1696) was king of Poland when the Turkish menace to Christendom was at its height. Heading a Christian alliance, he defeated the

Turks at the gates of Vienna in 1683. For this victory, Sobieski was called the *Saviour of Vienna and Western European civilization*. Born at Olesko, Galicia, Sobieski trained for a military career. He gained experience fighting Cossacks, Tartars, and Turks. Sobieski was elected king of Poland in 1674.

**John VI** (1769?-1826) was king of Portugal from 1816 to 1826. He took power as regent in 1792 when his mother, Maria I, became insane. Napoleon's armies threatened Portugal in 1807, and John fled to Brazil, a Portuguese colony. He raised Brazil to the status of a kingdom and introduced reforms. In 1821, John returned to Portugal. His son declared Brazil independent, and became its emperor as Pedro I in 1822.

See also **Pedro (I)**.

**John XXII** (about 1245-1334) was elected pope in 1316. He was the second pope to spend his reign in Avignon, France, instead of Rome. See **Pope** (The troubles of the papacy).

John had a stormy reign. A conflict with the German emperor Louis IV of Bavaria lasted from 1322 until John's death. Louis had attempted to assert imperial authority in Italy over the church, and John excommunicated him in 1324. John also had a serious dispute with the Franciscan religious order over the issue of Franciscan poverty. A number of Franciscans refused to conform to papal definitions of poverty, *seceded* (withdrew) from the order, and allied themselves with the emperor.

John was an important administrator and legislator. In 1317, he issued a significant collection of church laws, which dealt with the decrees of the Council of Vienne (1311-1312) and those of Clement V, the preceding pope. John was born in Cahors, France. His given and family name was Jacques Duèse.

**John XXIII** (about 1370-1419) was an antipope during a troubled period in church history called the Great Schism (1378-1417). An antipope is a man determined to have improperly claimed to be or served as pope.

John was elected pope in 1410. At the time of his election two other men also claimed to be pope. John had been an adventurer and accomplished soldier before his election and he enjoyed the support of France, England, and several Italian states. Under pressure from the Holy Roman Emperor Sigismund, John agreed to call the Council of Constance (1414-1418) to resolve the rival claims to the papal throne. The council published revolutionary decrees that asserted its authority over the pope and accused John of serious crimes. He was condemned and deposed in 1415. John was born in Naples, Italy. His given and family name was Baldassare Cossa.

See also **Roman Catholic Church** (The Great Schism).

**John XXIII** (1881-1963) was elected pope in 1958, succeeding Pius XII. Many people thought that John would have a short, uneventful reign because he was nearly 77 years old. But John surprised the Roman Catholic Church and the world early in 1959 by calling an *ecumenical* (general) council. John's place in the church and in history rests on his courage and foresight in calling the Second Vatican Council, which met in 1962. He rarely interfered with the council's activities but reserved the right to approve its final decisions. John died while the council was in session. Pope Paul VI continued the council and approved its decrees after it ended in 1965. See **Vatican Council** (Vatican II).



John III Sobieski

John's other notable acts included his personal order to insert the name of Saint Joseph in the Canon of the Mass. The most important of his eight *encyclicals* (pastoral letters) were *Mater et Magistra* (1961) on social questions of peace and justice, and *Pacem in Terris* (1963) on the problems of peace among nations. John also explored the possibility of unity with the Eastern Orthodox churches.

Another important impact of John's reign came from the personal impression he made on people. He clearly recognized his limitations, and displayed a lively sense of humour. His frank kindness earned him the name *good Pope John*.

John was born in Bergamo, Italy. His given and family name was Angelo Giuseppe Roncalli. He was ordained a priest in 1904, and served in the Italian Army during World War I (1914-1918). Beginning in 1925, he held a series of appointments as diplomatic representative of the Vatican in Bulgaria, Turkey, Greece, and France. Pope Pius XII elevated him to cardinal in 1953.

**John, Augustus Edwin** (1878-1961), a Welsh-born painter, became known principally for his portraits of prominent people. The subjects of his portraits include David Lloyd George, George Bernard Shaw, Montague Norman, William Butler Yeats, and Dylan Thomas. His portraits are realistic and are considered good interpretations of character.

Augustus John was born at Tenby, Dyfed, but he lived most of his life in London. John occasionally painted pictures on various other themes, and also made etchings.

**John, Barry** (1945- ), a Welsh rugby union player, won fame as the most outstanding British player of his time. He played at outside half for Llanelli and Cardiff rugby football clubs during the 1960's and 1970's. In 20 appearances for Wales, he scored 90 points in international games. John also played for the British Lions touring side.

John was born at Cefneithen, near Cross Hands, in Dyfed. As a rugby player, he became known for his skilful running, his brilliance at scoring drop goals, and his place kicking. He retired from international rugby in 1972.

**John, Elton** (1947- ), is a British rock pianist, singer, and songwriter. He won fame as one of the most successful recording artists in the world during the 1970's. His concerts drew crowds of up to 400,000 people, and millions of fans called him "the new messiah of rock." John's extravagant stage performances, outlandish dress, and controversial life style drew criticism, but his musicianship was never questioned.

Trained as a classical pianist, John began playing piano with the group Bluesology in the mid-1960's. In the late 1960's, he began a successful partnership with lyricist Bernie Taupin. John's first hit single, "Your Song," appeared in 1970. Other successes include "Blue Eyes," and "I'm still standing." His finest albums include *Goodbye Yellowbrick Road*.

John was born Reginald Kenneth Dwight in Pinner, North London. A keen soccer enthusiast, he was chairman of Watford Association Football Club from 1976 until 1990, when he became president of the club.

**John, Epistles of**, are the 23rd, 24th, and 25th books of the New Testament of the Bible. Although the first and longest of them is called an *epistle* (letter), it is really

a kind of theological essay. The second and third Epistles are actual letters.

The author of the second and third Epistles calls himself the *presbyter*, or elder. He wrote to a church he calls the "elect lady" and to an individual named Gaius. All three documents come from the circles that produced the Gospel of John. They were probably written in about A.D. 100. The first two Epistles call for mutual love among Christians and for the recognition that Jesus Christ was truly a human being. The third Epistle discusses problems concerning Christian hospitality.

See also *Bible* (Books of the New Testament).

**John, Errol** (1923-1988), a West Indian actor and writer, won acclaim for his brilliant short play, *Moon on a Rainbow Shawl*, first produced in London in 1958. The play is set in a crowded backyard in Port-of-Spain, Trinidad. John uses speech rhythms, snatches of calypso music, hymn tunes, and street cries to convey a lyrical complexity of experience.

John also wrote three screenplays, *Force Majeure*, *The Dispossessed*, and *Hasta Luego*. They were published in 1967. The films are set in London, the West Indies, and Mexico respectively. The central theme in all of them is destructive violence. John was born and educated in Trinidad. He moved to London in 1950.

**John, Gospel of**. See *Gospels*.

**John, Gwen** (1876-1939), was a British painter, known for her portraits. The subjects of her paintings are often single figures of young girls or nuns. Many are self-portraits. Unlike her brother, the artist Augustus John, she lived the life of a recluse. Her work was not widely recognized in her lifetime. She painted with great sensitivity, using delicate greyish tones.

Gwen John was born in Haverfordwest, Dyfed, Wales, and studied in London and Paris. She spent most of her life in France, where she became the model and close friend of the sculptor Auguste Rodin.

**John, Saint**, was one of the 12 apostles of Jesus Christ. He was the brother of the apostle James. With James, he was one of the first disciples to be called by Jesus. According to the Bible (Mark 3: 17), Jesus called John and James the "sons of thunder," apparently because of their rashness. John is usually associated with Peter and James as one of a select, inner group of disciples. In Gal. 2: 6-10, Saint Paul called John a "pillar" of the church. The Acts of the Apostles reports that John was arrested with Peter because of his preaching.

John is traditionally regarded as the New Testament author of the fourth Gospel, the three Epistles of John, and the Book of Revelation. But many Biblical scholars believe that these works, or some of them, were written by his followers. John has often been considered the "beloved disciple" mentioned in the fourth Gospel, but scholars are unsure of this reference.

In addition to the Biblical evidence, later tradition records that John preached in Ephesus in Asia Minor until he was very old. He is honoured as the patron saint of Asia Minor. John is also said to have been martyred in Rome by being boiled in oil. His feast day in the Roman Catholic Church is December 27. In the Eastern Orthodox Churches, John's feast day is celebrated on September 26.

See also *James; John, Epistles of; Revelation, Book of*.



**John Bull** is the name used for England and the English people. The nickname John Bull was used in the 1600's. But John Arbuthnot, a Scottish writer, fixed the popular idea of John Bull. In 1712, Arbuthnot published pamphlets advocating the end of the War of the Spanish Succession. The pamphlets were republished in 1712 as *The History of John Bull*. In this book, John Bull, representing England, appears as a jolly, honest, plain-dealing, hot-tempered farmer.

Sir John Tenniel, famous cartoonist of *Punch* magazine in the 1800's, pictured John Bull as a dignified gentleman. The John Bull usually seen today appeared in the drawings of Sir Francis Carruthers Gould, published in the *Westminster Gazette* in the late 1800's and early 1900's. Gould pictured John Bull wearing a "tile" hat and swallow-tailed coat. His trousers are tucked into riding boots, and the British flag sometimes appears on his waistcoat.

**John Chrysostom, Saint.** See Chrysostom, Saint John.

**John Dory** is a short, deep-bodied fish with a characteristic large, black spot on each side. It is widely distributed in both northern and southern hemispheres.

A rather feeble swimmer, the John Dory is carried along in drifting currents. Specimens of the fish have been recorded over 60 centimetres in length, but the average size is less than 30 centimetres. The John Dory has sweet-tasting flesh. It is fished commercially in many countries.

**Scientific classification.** The John Dory belongs to the family Zeidae, genus *Zeus*.

**John Henry.** See Henry, John.



"John Bull" is a symbol of the English people.

**John of Gaunt** (1340-1399), Duke of Lancaster, was the power behind the throne during much of the reign of his nephew, King Richard II of England. He fought under his nephew in the French wars for nearly 10 years. The duke supported John Wycliffe's efforts to reform the English clergy.

John was the son of King Edward III of England. He was born in Ghent, Belgium, from which he took his name. He became Duke of Lancaster after the father of his first wife, Blanche of Lancaster, died in 1361. By his marriage to Constance of Castile in 1372, he claimed the Castilian throne. His son, Henry IV, was the first of the Lancastrian kings. John married Katherine Swynford, his mistress, in 1396. A great-grandson of John and Katherine became King Richard III, and a great-great-grandson became King Henry VII.

See also Lancaster.

**John o' Groats** is in Highland Region near the north-eastern tip of the mainland of Scotland. It is 1,405 kilometres (873 miles) by road from Land's End in Cornwall (see Land's End). It is the site of an eight-sided house built by a Dutchman, John de Groot. John o' Groats is on the shore of the Pentland Firth. John o' Groats is in the Caithness local government district.

See also Caithness; Highland Region.

**John Paul I** (1912-1978) was elected pope of the Roman Catholic Church in 1978. His reign from his election on August 26 to his sudden death on September 28 was one of the shortest in papal history. He was the first pope to take two names, combining the names of the two previous popes, John XXIII and Paul VI. John Paul's reign was too brief to make a lasting impact on the church. However, he did dispense with the traditional papal coronation. Instead, at his coronation, he simply received the wool collar called the *pallium* that is the symbol of the pope's pastoral office.

John Paul was born in Forno di Canale (now Canale d'Agordo), Italy, near Belluno, of working-class parents. His given and family name was Albino Luciani. He was ordained a priest in 1935. He was named bishop of Vittorio Veneto in 1958 and in 1969 was appointed patriarch of Venice. Pope Paul VI made him a cardinal in 1973.



**John o' Groats** is traditionally regarded as the most northeasterly point on mainland Britain. It contains the very last house on the Scottish mainland.

**John Paul II** (1920– ) was elected pope of the Roman Catholic Church in 1978. John Paul, who was born in Poland, became the first non-Italian pope since Adrian VI (1522-1523), who was Dutch.

More than any other pope of the 1900's, John Paul made the papacy part of the world scene by travelling to more than 70 countries, the majority of them developing nations. These trips included a tour of Central America in 1983, of the Far East in 1989, and of Africa in 1990. The pope used these journeys to show the universal character of the Roman Catholic Church and to personally deliver the message of the Gospel to many peoples.

In 1984, John Paul negotiated with the Italian government a new *concordat* (agreement) recognizing the separation of church and state.

John Paul is a robust man who enjoys skiing and swimming. His outgoing personality makes him enormously popular. He attracted such large crowds to his weekly *audiences* (public appearances) that the audiences had to be moved from St. Peter's Church to the square outside. During an appearance there in May 1981, he was shot and seriously wounded. Mehmet Ali Agca, a Turkish terrorist, was convicted of the shooting. The pope recovered completely from the attack.

John Paul is theologically conservative. He ordered the investigation of the teachings of several prominent Catholic theologians. Their credentials to teach in Catholic universities were eventually withdrawn because their teaching departed from church doctrine. John Paul has often expressed his acceptance of the teachings of previous popes opposing the use of artificial means of birth control.

Many of John Paul's speeches, *encyclicals* (letters to the entire church) and other messages have reflected his progressive social views. Encyclicals issued in 1979, 1981, and 1988 challenged both Marxism and capitalism to improve the condition of the world's poor and called for a new world economic order. Before and after his election, John Paul was an opponent of Poland's Communist government. He was also an influential supporter of religious liberty during the debate on that issue at Vatican Council II (1962-1965).

John Paul was born in Wadowice, Poland, near Kraków. His given and family name was Karol Jozef Wojtyła. He was ordained a priest in 1946 and became auxiliary bishop of Kraków in 1958. He became archbishop of Kraków in 1964 and a cardinal in 1967.

**John the Baptist, Saint** (6 B.C.?-A.D. 28), in Christianity, was a prophet who was considered the forerunner of Jesus Christ. During his public ministry, John baptized Jesus, an event seen as the start of Jesus' ministry.

John was the son of Zechariah and Elizabeth, who was a relative of Mary, the mother of Jesus (see **Elizabeth, Saint**). John was probably raised in a Jewish community in the wilderness of Judea. Pious Jews fled to these wilderness communities to escape the sinfulness they saw in their nation. About A.D. 27, John appeared in Judea, proclaiming the coming of God and baptizing people into a new, purified community. John urged people to repent, to turn away from their old lives, and to adopt new lives of piety and obedience to God. All this was in preparation for the coming of one who would baptize them in the Holy Spirit.

Many people were attracted to John and his call for



*The Baptism of Christ* (about 1472), a tempera painting on wood; Uffizi Gallery, Florence, Italy

**John the Baptist's baptism of Jesus** was portrayed in this painting by Andrea del Verrocchio and Leonardo da Vinci.

repentance, and a large body of followers grew up around him. Within the larger group, John had a smaller group of disciples whom he instructed in pious living and who observed Jewish religious practices.

The political authorities were suspicious of the crowds John attracted. The authorities feared the possibility of a popular uprising against the Roman rulers of Palestine. John was arrested by Herod Antipas, the governor of Galilee, imprisoned in a fortress, and eventually executed.

As Jesus' ministry emerged, many of His followers seem to have been drawn from John's followers. After John's death, many more of his followers apparently joined Jesus' movement. But John's followers still made up a movement that continued after his death. Saint Paul found a group of John's followers in the Greek city of Ephesus in the A.D. 50's.

See also **Salome**.

**John the Evangelist, Saint.** See **John, Saint**.

**Johnny Appleseed.** See **Appleseed, Johnny**.

**Johns, Jasper** (1930– ), is an American artist. In the late 1950's, he became known for his representations of common objects. For example, Johns painted pictures that consist of numbers, targets, a map of the United States, or the American flag. He chose these subjects because their flatness would be emphasized by two-dimensional representation. Johns also believes that flat objects are best suited to the flatness of a painting surface.

Johns also chose his subjects because they are so often seen that they are taken for granted. He took the objects from their normal settings and isolated them as single subjects of paintings. Johns thus called more direct attention to the objects, and therefore their func-



tions, forms, and meanings, than they normally receive. Johns has created sculptures out of such objects as torches, light bulbs, and beer cans.

Johns' art developed out of the abstract expressionist movement of the early 1950's. However, because of his depiction of common objects, he is also a forerunner of the pop art period of the early 1960's (see Pop art). Johns was born in Allendale, South Carolina.

**Johns, W. E.** (1893-1968), a British writer, gained great popularity among schoolboys with his thrilling stories of Biggles, a daring and adventurous airman. His many books about Biggles' exploits have been translated into several languages. Among Johns's other books on flying are *Fighting Planes and Aces* (1932), *The Air V.C.s* (1934), and *Milestones of Aviation* (1935).

Johns was born at Hertford, in Hertfordshire, England, and named William Earl Johns. He served with the Royal Flying Corps in World War I and was shot down, wounded, and taken prisoner in 1918.

**Johnson, Amy** (1903-1941), a British airwoman, won fame in 1930 when she became the first woman to make a solo flight from England to Australia. Johnson went on to make many other record-breaking trips, including flights to Japan (1931), to Cape Town in South Africa (1932), and, with her husband, James Mollison, to Karachi (1934).

Amy Johnson was born in Hull, England, and studied at Sheffield University. She was made a CBE in 1930 and was awarded the Seagrave Trophy in 1933. In 1939, she joined the Air Transport Auxiliary. She was drowned after baling out from an aeroplane over the Thames estuary.

**Johnson, Andrew** (1808-1875), was president of the United States from 1865 to 1869. A Democrat, he was elected vice president in 1864 on the National Union Party ticket that included President Abraham Lincoln, a



**Amy Johnson** was the first woman to make a solo flight from England to Australia. Her daring flight took 19½ days.

Republican. Johnson became president on April 15, 1865, following Lincoln's assassination.

Johnson was the only U.S. president ever to be *impeached* (officially charged with misconduct) by the U.S. House of Representatives. His impeachment stemmed mainly from disagreements with Congress over how to treat the South after the American Civil War (1861-1865). In May 1865 Johnson had granted a general *amnesty* (pardon) to all Southerners who met certain requirements (see **Reconstruction**).

Johnson's impeachment trial in the Senate ran from March 13 to May 26, 1868. The Senate failed to remove him from office by one vote.

Johnson was born in Raleigh, North Carolina.

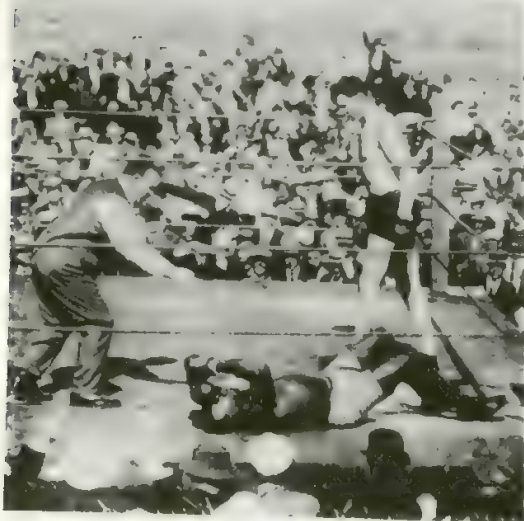
**Johnson, Jack** (1878-1946), an American boxer, was the first black to win the world heavyweight championship. Johnson defeated the reigning champion Tommy Burns for the title in 1908.

Many whites resented Johnson's winning the championship. Former heavyweight champion James J. Jeffries came out of retirement to fight Johnson in 1910. Johnson's defeat of Jeffries resulted in racial violence in many United States cities.

In 1913, Johnson was convicted of violating the Mann Act, which outlawed the transporting of women across state lines for immoral purposes. Johnson appealed against his conviction. Before a ruling on his appeal, Johnson fled from the United States. He first went to Canada and then to Europe and Mexico and South America. In 1915, Johnson lost his title to Jess Willard in Havana, Cuba. Johnson returned to the United States in 1920 and served 10 months in jail for his 1913 conviction. He then continued professional boxing until 1928 and fought exhibitions until 1945. Johnson was also a lecturer and show-business performer after 1928.

John Arthur Johnson was born in Galveston, Texas. He began boxing professionally in 1897.

**Johnson, Lyndon Baines** (1908-1973), was president of the United States from 1963 to 1969. Elected vice president in 1960, he became president on Nov. 22, 1963, upon the assassination of President John F. Kennedy. Johnson was elected to a full term as president in 1964.



**Jack Johnson** lost his heavyweight title to Jess Willard. Johnson shaded his eyes from the sun while being counted out, above. Later he claimed he was paid to let Willard win.

**Early life.** Johnson was born on Aug. 27, 1908, near Stonewall, Texas. He graduated from college in 1930. In 1931, he went to Washington, D.C., as a congressional secretary. He was elected to the U.S. House of Representatives in 1937. From 1941 to 1942, during World War II, Johnson served as a lieutenant commander in the U.S. Navy.

Johnson was elected to the U.S. Senate in 1948. After the Democratic Party won control of both houses of Congress in 1954, he became majority leader of the Senate the following year. In this post, he often brought about agreement between Democrats and Republicans through clever planning and persuasion, which became known as the "LBJ treatment."

**Vice president.** In 1960, Johnson announced his candidacy for the Democratic presidential nomination. But the party nominated John F. Kennedy. Johnson accepted Kennedy's invitation to run for vice president. In the November election, the Democrats narrowly defeated the Republican presidential candidate, Vice President Richard M. Nixon.

Johnson took a more active role in the government than had any previous vice president. President Kennedy often sent Johnson as his special representative to world trouble spots in the Cold War.

**President, 1963-1964.** On Nov. 22, 1963, President Kennedy was assassinated in Dallas, Texas. An hour and 39 minutes after Kennedy died, Johnson was sworn in as president.

Johnson proposed a programme to create new jobs and build up the economy. Congress approved the programme. In July 1964, Johnson signed a civil rights bill that opened to blacks all businesses that serve the public, and guaranteed equal job opportunities.

Johnson continued the U.S. policy of assisting South Vietnam in its fight against the *Viet Cong*. The Viet Cong were guerrilla forces supported by the Communist government of North Vietnam.

**Full-term president.** In 1964, Johnson easily won nomination for his first full term. His Republican oppo-

nent was Barry M. Goldwater. Johnson won by a landslide.

The widening Vietnam War became Johnson's chief problem. In 1965, Johnson ordered the first U.S. combat troops into South Vietnam. By 1968, the United States had more than 500,000 troops in South Vietnam (see *Vietnam War*). Many Americans began to doubt claims by administration officials about the progress of the war, and Johnson's personal popularity dropped.

**Retirement from politics.** On March 31, 1968, Johnson announced that he would not run for reelection. Johnson halted all bombing and other U.S. attacks on North Vietnamese territory on Nov. 1, 1968. His action led to peace talks involving the governments of the United States, North Vietnam, and South Vietnam, and a delegation from the Viet Cong.

After his term ended in January 1969, Johnson retired to his Texas ranch. He died on Jan. 22, 1973.

**Johnson, Philip Cortelyou** (1906- ), is an American architect. Johnson first gained recognition as an architectural critic. In 1932, he became the director of the architecture department at the Museum of Modern Art in New York City. With Henry-Russell Hitchcock, Johnson produced an exhibition catalogue called *The International Style* (1932). The catalogue defined and named the style that dominated European and American architecture in the early and mid-1900's. See *Architecture* (*The International Style*).

Johnson became an architect in the early 1940's. His first major design was the Glass House (1949) in New Canaan, Connecticut. Johnson based the design on the works of Ludwig Mies van der Rohe, a leader of the International Style.

In the 1970's, Johnson became a leader of a movement called *post-modernism*. Post-modern architects make free and explicit use of the arch and other traditional architectural elements. In 1978, Johnson and his partner, John Burgee, designed a controversial post-modern structure, the American Telephone and Telegraph Company headquarters building in New York



In a sad, solemn ceremony, Johnson took the presidential oath of office 1 hour and 39 minutes after President John F. Kennedy was assassinated. Johnson took the oath aboard the presidential aeroplane at Dallas. He stood between his wife, left, and Jacqueline Kennedy, the widow of the slain President.





**Johnson's Glass House** was the architect's first important work. He designed the structure in 1949 as his own residence in New Canaan, Connecticut. Its striking glass exterior and geometric form make the house a masterpiece of modern architecture.

City. The front of the building resembles a grandfather clock. Johnson was born in Cleveland, Ohio.

See also **Architecture** (introduction (picture); Architecture today).

**Johnson, Richard** (1753-1827), was the first clergyman in Australia. He arrived as army chaplain with the First Fleet in 1788 (see **First Fleet**). Soon after his arrival in Sydney, Johnson quarrelled with Arthur Phillip, the governor of the colony (see **Phillip, Arthur**). Johnson wanted to build a church, but Phillip did not think that the new colony urgently needed one. Johnson then set about building one at his own expense. He completed it and held the first service in it in August 1793. But the church was destroyed by fire in October 1798.

Johnson was born at Welton, near Hull, in Yorkshire, England. From 1788 until the arrival of Samuel Marsden in 1793, he was the only clergyman in the colony (see **Marsden, Samuel**). Johnson founded the first schools in Australia.

**Johnson, Samuel** (1709-1784), was the greatest British writer of his day and the subject of a famous biography by his friend James Boswell. Boswell preserved the wit and brilliance of Johnson's conversation; the sharpness of his opinions on people, politics, and literature; and the extraordinary vigour of his personality. These qualities enabled Johnson to outshine even the most gifted persons of his age, including Sir Joshua Reynolds, Edmund Burke, David Garrick, Oliver Goldsmith, and other members of the Literary Club, which Johnson and Reynolds founded in 1764.

Although Johnson was a remarkable man, his achievements as a writer are even more impressive. Johnson said he talked for pleasure and wrote for bread—and yet he wrote well. His style marked a high point in English prose, and he wrote with a sense of the moral and intellectual responsibilities of authorship.

**Early years.** Johnson was born in Lichfield, Staffordshire, England, the son of a bookseller. He attended Oxford University in 1728 and 1729 but had to leave after his money ran out.

Johnson was nearly penniless when he moved to Lon-

don in 1737. He contributed to *The Gentleman's Magazine* from 1738 to 1743, serving chiefly as a reporter of parliamentary debates. His satire *London* (1738), written in the style of the Roman satirist Juvenal, brought him to the attention of the public. The major productions of this early period were a biography of his friend Richard Savage (1744) and *The Vanity of Human Wishes* (1749), a Christianized imitation of Juvenal's *Tenth Satire*.

**Later years.** Between 1747 and 1755, Johnson worked on his *Dictionary of the English Language*. This massive and—in some of its definitions—humorous work established his fame. Johnson's reputation as a moralist nearly equalled his fame as a scholar. The moralist side of his character appears in his series of periodical essays, *The Rambler* (1750-1752), and in his philosophical tale, *Rasselas, Prince of Abyssinia* (1759).

Johnson's high place in English literature rests largely on the preface to his edition (1765) of William Shakespeare's plays, and his collection of essays, *The Lives of the English Poets* (1779-1781). Some of Johnson's opinions in these works are eccentric. But the works are notable for their keenness and strength of judgment, and the force and polish of the writing. They established Johnson as one of the best critics in the English language.

In 1773, Johnson and Boswell toured the Hebrides, a group of islands off the northwest coast of Scotland. Johnson recorded his impressions of the trip in *Journey to the Western Islands of Scotland* (1775). Boswell wrote a diary, *Journal of a Tour to the Hebrides* (1785).

See also **Boswell, James**; **English literature** (The Age of Johnson); **Dictionary** (Early English dictionaries).

**Johnson Space Center** is the headquarters for all United States manned spacecraft projects conducted by the National Aeronautics and Space Administration (NASA). The centre's full name is the Lyndon B. Johnson Space Center. It was formerly called the Manned Spacecraft Center. The centre covers about 650 hectares in Houston, Texas.

The space centre serves as training headquarters for U.S. astronauts. After a manned space flight lifts off from Cape Canaveral, the Mission Control Center at the space centre controls the flight. The Mission Control Center monitors the various systems that keep the astronauts alive and the spacecraft functioning.

Engineers at the space centre supervise the design, development, and construction of spacecraft. The vehicles are built in factories and then checked thoroughly at the centre. Special chambers at the space centre reproduce flight vibrations, the vacuum of space, and the great temperature changes in space and on the moon.

Construction of the Manned Spacecraft Center began in 1962, and the centre became the headquarters of the U.S. manned space programme in 1964. Scientists and engineers at the centre directed the first landing of



Detail of a portrait (1766) by Sir Joshua Reynolds; National Portrait Gallery, London

**Samuel Johnson**

astronauts on the moon in July 1969. The space centre was renamed in February 1973, after the death of former President Lyndon B. Johnson.

**Johnston, Edward** (1872-1944), was a British authority on lettering. His book *Writing and Illuminating, and Lettering* is a standard work on the subject. Johnston also designed the clear lettering used on London buses and underground trains. Johnston was born in Uruguay. He was taken to England as a child and was educated at home. He taught lettering at the Royal College of Art, in London.

**Johnston, Franz.** See Group of Seven.

**Johnston, George Henry** (1912-1970), an Australian novelist, wrote *My Brother Jack*, which won the Miles Franklin Literary Award in 1964.

*My Brother Jack* appears to be an autobiographical novel. It is a powerful reconstruction of Melbourne following World War I (1914-1918). The narrator, David Meredith, recalls his beginnings with a mixture of irony and nostalgia and analyses his relationship with his brother. The characterization is brilliant, and the construction of the novel is excellent. The sequel to *My Brother Jack*, *Clean Straw for Nothing* (1969), takes narrator Meredith to Europe. In this book, Johnston examines the problems of the creative artist in general and the expatriate Australian in particular. The third book in the trilogy was *A Cartload of Clay* (1971).

Johnston was born at Malvern, in Victoria, and educated at Brighton Technical School and the National Gallery Arts School in Melbourne. During World War II, he was a war correspondent.

**Johnston, Sir Harry** (1858-1927), was a British explorer who played an important part in the foundation of British rule in east-central Africa. Between 1879 and 1906, he explored many parts of Africa, including Angola, the basin of the Congo (Zaire) River, and the area round Mount Kilimanjaro.

Johnston was British consul in Portuguese East Africa (now Mozambique) in 1889. He helped the British Empire to acquire Northern Rhodesia (now Zambia) and Nyasaland (now Malawi), and was commissioner for British Central Africa from 1891 to 1896. Later, he became consul general in Tunisia and special commissioner in Uganda. He was born in London and named Harry Hamilton Johnston. He studied at King's College, London, and the Royal Academy Schools.

**Johor** is the most southern state of Peninsular Malaysia. A short causeway across the Straits of Johor links Johor with Singapore. The state capital is Johor Bahru.

**People and government.** Just over half of Johor's population are Malays. About one-third are Chinese and 6 per cent are Indians.

The head of state of Johor is a sultan, who is a hereditary ruler. The state has 36 seats in Malaysia's House of Representatives.

### Facts in brief about Johor

**Population:** 1991 census—2,074,297.

**Area:** 18,986 km<sup>2</sup>.

**Capital:** Johor Bahru.

**Largest cities:** Johor Bahru, Batu Pahat, Muar, Segamat, Kelang.

**Chief products:** Agriculture—palm oil, pineapples, rubber, timber. Manufacturing—textiles, wood products.



The flag of Johor has the crescent and star of Islam in white on red against a blue ground. The coat of arms, right, has a shield displaying the Islamic star and crescent, and a star at each corner standing for the four original districts of the state. The state motto, written in Arabic on the scroll, is *In the Hands of Allah*.

**Economy.** The state is a major producer of rubber and pineapples. It also produces palm oil, a vegetable oil made from palm tree nuts. Johor's huge forest reserves are the basis of an important timber and wood processing industry.

During the 1980s, there was major expansion of industrial estates and township projects across the state, and the emergence of an important financial services sector. A number of international companies have moved to Johor from Singapore. Many people living in Johor commute to work in Singapore.

**Land.** Most of Johor is low lying, with gently sloping hills. The highest point is Mount Ledang (Ophir), which reaches 1,276 metres close to the border with Melaka. Many short rivers flow out of the central, hilly part of the state, and drain into either the South China Sea, the Strait of Malacca, or the Straits of Johor. The coastal districts, particularly on the east coast, have extensive swamp areas.

The main railway runs northwest through the state,

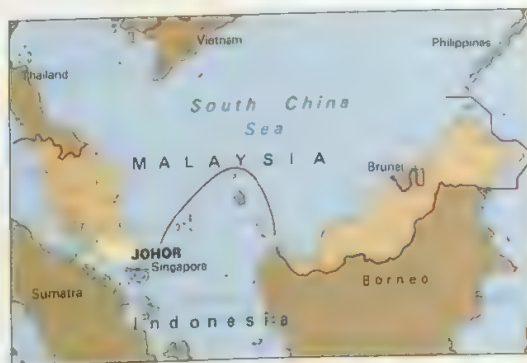
### Places to visit

Following are brief descriptions of some of the interesting places to visit in Johor:

**Johor Bahru**, the state capital, has the Sultan Abu Bakar Mosque, built in 1892. The Istana Besar, the sultan's residence, is now a museum housing the valuable collection of furniture of the Johor Sultanate.

**Deasaru** is a resort on the east coast with a 25-kilometre golden beach.

**Kota Tinggi** has magnificent waterfalls.



Johor is the most southern state of Peninsular Malaysia. A short causeway links it with the island of Singapore.





A causeway, carrying a busy road and railway, links the Malaysian state of Johor with the island of Singapore. During the day, many commuters cross the causeway to work in Singapore. Thousands of visitors cross from Singapore to shop and visit the sights in Johor Bahru.

linking it with the west coast states and with Pahang and Kelantan, as well as with Singapore across the causeway. The state also has excellent road communications with the other states of the peninsula and with Singapore.

**History.** The area of Johor was probably the site of important trading settlements as early as A.D. 800. During the 1300's, it was a dependency of the Javanese empire of Majapahit. In the 1400's, the area came under the authority of Melaka. Following the fall of Melaka to the Portuguese in 1511, Johor became an important centre of trade, attracting vessels from all over the Malay world, and emerged as a major political power.

Both the Portuguese and the north Sumatra sultanate of Aceh launched raids against Johor in the 1500's. In the early 1600's, Johor made an alliance with the Dutch, and was able to free itself from the Portuguese and Acehnese threats. Forces from Johor supported the Dutch during the siege of the Portuguese settlement of Melaka in 1640-1641. Through the 1800's, the *temenggongs* (chief ministers) provided a line of capable rulers in Johor. The most notable was Temenggong Abu Bakar, who assumed the title of sultan in 1885. He used his close relationship with the British in Singapore to modernize his administration and to develop the economy of Johor. The Johor sultanate retained much of its independence under British protection. Commercial agriculture grew rapidly.

In early 1942, Japanese forces defeated the British, but the prewar administration returned in 1945. In 1948, Johor joined the Federation of Malaya. Malaya became independent in 1957.

See also **Johor Bahru; Malaysia.**

**Johor Bahru** (pop. 246,395) is the fourth largest city in Malaysia. The city's name is also spelled *Johor Baharu*, or formerly, *Johore Bahru*. It is the capital of the state of Johor. The city lies on the southern tip of Peninsular Malaysia. For location, see **Malaysia** (map).

Johor Bahru is the southern entrance to Malaysia from Singapore. A causeway carrying a road and a railway links the town to the island of Singapore. Every day, more than 50,000 people and 20,000 vehicles cross the causeway from Singapore. Johor Bahru attracts visitors from Singapore because the prices of goods are cheaper. The city has several large shopping complexes.

Its tourist attractions include the Istana Besar, the main palace built in 1886. Sultan Abu Bakar Mosque is one of the most beautiful buildings in Malaysia. New buildings include offices and hotels.

The city is a growing industrial centre, with many new industrial estates. Johor Bahru is a major port for southern Malaysia. It is the terminal of Malaysia's main north-south highway, which links the main towns from Johor Bahru to Penang. Johor Bahru has an airport at Senai.

Ibrahim, who was *temenggong* (chief minister) of Johor from 1825 to 1862, founded the town in the 1850's. At that time, it was known as Tanjung Putri, taking its name from the site on which it was built. Ibrahim's eldest son, Abu Bakar, who became *temenggong* in 1862, named it Johore Bahru (New Johore) in 1866. In the 1980's, many overseas companies invested in the area because of its closeness to Singapore. As a result, the Technological University of Malaysia moved from Kuala Lumpur to Johor Bahru.

**Joint** is the place at which two or more bones meet in the skeleton of the body. This place is also called an *articulation*. Joints may be *fixed* or *movable*. Fixed joints are seams between bones that lie directly against each other, or are separated only by a thin layer of connective tissue. In case of a blow or an accident, these joints may absorb just enough shock to keep the bones from breaking. The joints of the *cranium* (covering of the brain) are fixed and protect the brain.

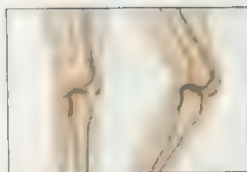
There are three main kinds of movable joints: (1) *hinge* joints, (2) *pivot* joints, and (3) *ball-and-socket* joints. Hinge joints are those that permit a forward and backward motion in one plane, like the motion of a door on its hinges. The joints at the knee and fingers are modified hinge joints. Pivot joints give a rotating motion, such as the movement of the head from side to side. The elbow has both hinge and pivot joints. Ball-and-socket joints allow the greatest freedom of movement. These joints are made up of a large round end of a long bone that fits into the hollow of another bone. The hip and shoulder have ball-and-socket joints. The arms of the body can move more freely than the legs because of the way that the joints are arranged, and because the shoulder blade is only loosely attached to the chest wall.

Movable joints are protected from wear and tear in several ways. A smooth layer of *cartilage* (gristle) covers

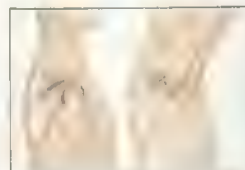
## Main kinds of human joints



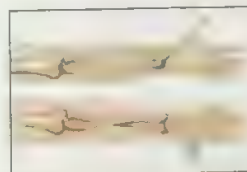
**Fixed joints**, such as those between the bones of the skull, permit no movement.



**Hinge joints**, such as the knee, allow backward and forward movements.



**Ball-and-socket joints**, like the shoulder, provide swinging and rotating movements.



**Pivot joints**, such as those found in the elbow, permit a rotating kind of movement.

the ends of bones that move over one another. The elasticity of cartilage breaks the force of sudden shocks. Also, the smooth quality of the cartilage makes a joint move easily. A liquid called *synovial fluid* keeps the joints moist and lubricated. See **Cartilage**.

Bones are held together at the joint by strong ligaments that attach above and below the joint. At the hip, a number of ligaments circle the bone like a collar to keep the joint in place.

Joints are often sprained or dislocated. A sprain occurs when the ligaments around a joint are torn or badly stretched. Serious sprains are painful, and if neglected may result in instability of the joint. Dislocated joints should be treated as soon as possible by a doctor. Inflammation of the joints may result from infections or from such disorders as arthritis.

**Related articles in World Book include:**

Ankle	Bursitis	Hip	Sprain
Arthritis	Dislocation	Knee	Suture
Arthroscopy	Elbow	Ligament	Wrist
Bunion	Gout	Rheumatism	

**Joint-stock company** was a form of business organization in which the funds to carry on business were obtained by selling shares of *stock* (the companies' capital) to a number of individuals. Such companies, which were common in the 1600's and 1700's, were the forerunners of modern companies and corporations (see **Company; Corporation**).

The joint-stock idea began in the early 1500's, after the first European explorers had found all-water routes to the Far East and had visited America. Traders who wished to use the routes needed money for ships and cargo. The trade was risky, too. The sale of shares obtained money from many people and divided the risk. The Mississippi and South Sea companies, two unsuccessful joint-stock companies, ruined many investors in the 1700's (see **Mississippi Scheme; South Sea Bubble**).

The East India Company, the most famous of the English joint-stock companies, was chartered in 1600. It

traded with and ruled India until 1858. The Hudson's Bay Company, chartered in 1670 to trade in Canada, is still in business. See **East India Company; Hudson's Bay Company**.

**Jojoba** is an evergreen shrub that grows wild in desert regions of northwestern Mexico and the Southwestern United States. Jojobas produce seeds, also called *beans* or *nuts*, that contain an oil similar to that obtained from sperm whales. Many governments have banned whaling and the import of whale products. As a result, jojoba oil has become a valuable substitute for sperm whale oil in lubricants, cosmetics, and many industrial chemicals. Jojobas began to be introduced to arid areas in many parts of the world in the late 1970's.

Jojobas grow from 1 to 2.5 metres tall in the wild, and the plants may live more than 100 years. Each female jojoba produces up to about 4.5 kilograms of seeds annually.

**Scientific classification.** Scientists disagree on the classification of the jojoba. It is currently placed in the family Buxaceae and classified as either *Simmondsia californica* or *S. chinensis*.

**Joke.** See **Humour**.

**Joliot-Curie, Frédéric.** See Joliot-Curie, Irène.

**Joliot-Curie, Irène** (1897-1956), was a French physicist known for her work with radioactivity, especially the production of artificial radioactive elements. She was the daughter of the Nobel Prize-winning physicists Marie and Pierre Curie. Joliot-Curie and her husband, Frédéric, shared the 1935 Nobel Prize for chemistry.

In 1933, the Joliot-Curies determined the conditions under which *positrons* (positive electrons) could be emitted when high-energy radioactive particles passed through matter. In 1934, the Joliot-Curies demonstrated that the bombardment of boron by alpha rays created a radioactive isotope of nitrogen. This discovery, which led to the production of artificial radioactive elements, resulted in their being awarded the Nobel Prize.

Irène Curie was born in Paris. She served as her mother's assistant at the Radium Institute (now the Curie Institute), where she met Frédéric Joliot. She later became a member of the French Atomic Energy Commission. Under the direction of this group, France put a nuclear reactor into operation in 1948.

**Joliet, Louis** (1645-1700), also spelled *Joliet*, was a French-Canadian explorer who led an expedition down the Mississippi River, in North America. He and Jacques Marquette, a French missionary, were probably the first white explorers to reach the upper Mississippi and parts of Illinois and Wisconsin.

**Early life.** Joliet was born near Quebec City in what was then the French province of New France (now Canada). As a boy, he attended a school in Quebec run by Jesuit priests. Joliet began to study for the priesthood when he was a teenager. But he later changed his mind and left college at the age of 22.



Irène Joliot-Curie



From 1669 to 1671, Jolliet explored much of the Great Lakes region for the government of New France. During this time, he became a skilled mapmaker and also worked as a fur trader. About 1670, Jolliet established a fur-trading post at Sault Sainte Marie in what is now Ontario, Canada. He traded guns, knives, and other items to Indian trappers in exchange for beaver pelts, which brought great profits in France.

**Discovery and exploration.** The Indians of the Great Lakes region often talked about a great waterway that flowed to the sea. They called it the Mississippi, which in their language meant *big river*. The French thought this river might flow west to the Pacific Ocean and provide a trading route to the Far East.

In 1673, Governor General Comte de Frontenac of New France sent Jolliet to find the Mississippi and trace its course. Marquette, a Jesuit priest who had worked among the Indians as a missionary and knew their languages, was chosen to accompany Jolliet.

In May 1673, Jolliet and Marquette, accompanied by five other men, set out in two canoes from St. Ignace on northern Lake Michigan. They travelled through what is now Wisconsin to the Mississippi. For a map of their journey, see *Marquette, Jacques*.

As Jolliet and Marquette paddled down the Mississippi, they realized that the river flowed south, not west. They concluded that it probably emptied into the Gulf of Mexico. When the group reached the mouth of the Arkansas River, they began to encounter hostile Indians. A friendly Indian told Marquette that white people lived farther south on the Mississippi. Jolliet and Marquette assumed these people must be Spaniards who had settled near the Gulf of Mexico.

Fearing attacks by the Indians and the Spaniards, the party turned back. They returned to Lake Michigan. Jolliet's canoe overturned in the St. Lawrence River near Montreal, and all his maps and records of the journey were lost. He later made some maps from memory. The entire expedition took about five months.

**Later years.** The government of New France gave Jolliet Anticosti Island in the Gulf of St. Lawrence as a reward for his service. He travelled up into Hudson Bay in 1679 and explored the coast of present-day Labrador in 1689 and 1694. On these expeditions, Jolliet made many *hydrographs* (maps of navigable waters). In 1697, he was appointed hydrographer of the king with headquarters in Quebec. He also taught navigation at a Jesuit college there.

**Jolly Roger.** See *Pirate*.

**Jolson, Al** (1886-1950), was a popular American stage and film entertainer. Jolson was an exuberant performer with a warm singing voice. He became identified with a number of popular songs, including "April Showers," "Avalon," "California, Here I Come," "My Mammy," "Swanee," and "Toot, Toot, Tootsie!" Jolson starred in the first important sound film, *The Jazz Singer* (1927). He appeared in a number of other films during the late 1920s and the 1930s.

Jolson was born in Srednike, near Kaunas, Lithuania. His real name was Asa Yoelson. Jolson's family emigrated to the United States when he was 8 years old. He appeared in minstrel shows and in burlesque and vaudeville before making his debut on Broadway in the musical *La Belle Paree* (1911).

**Jonah, Book of,** is one of a group of books of the Bible called the *Prophets*. The Book of Jonah is the only book in the group that tells a story about a prophet. The other books consist of statements by prophets. The Book of Jonah was probably written in the 400s B.C.

The Book of Jonah begins with God calling upon Jonah to prophesy against the wicked people of the city of Nineveh. But Jonah tries to flee from God's mission in a ship. During the voyage, God creates a great storm. The sailors decide that Jonah is the reason for the storm, and they throw him into the sea. God orders a "great fish," traditionally considered a whale, to swallow Jonah. Jonah lives in the fish for three days before God orders the fish to spit Jonah onto land.

God again tells Jonah to go to Nineveh, and this time Jonah obeys. Jonah's prophecy frightens the Ninevites into changing their sinful ways, and God spares them. God's mercy angers Jonah. Jonah goes outside Nineveh and waits to see what will happen to the city. God causes a plant to grow so that Jonah will have shade from the sun. But the next morning, God causes a worm to destroy the plant. God contrasts Jonah's sympathy for the plant with his lack of sympathy for Nineveh. According to one interpretation, the story contrasts the narrow concerns of Jonah with the universal concerns of God. The story calls on the Jews to reject narrow nationalism and return to their mission of preaching God's forgiveness and mercy to all people.

**Jones, Bobby** (1902-1971), an American golfer, was one of the greatest players in the history of the sport. In 1930, Jones became the only player ever to win the United States Open, the British Open, the United States Amateur, and the British Amateur tournaments in one year. These were the world's four major golf events at that time. After completing this "Grand Slam," Jones retired from tournament play at the age of 28.

Between 1923 and 1930, Jones won 13 major titles. In addition to his Grand Slam, he won the U.S. Open in 1923, 1926, and 1929; the British Open in 1926 and 1927; and the U.S. Amateur in 1924, 1925, 1927, and 1928.

Jones was born in Atlanta, Georgia. His full name was Robert Tyre Jones, Jr. After his retirement, Jones and banker Clifford Roberts founded the Augusta National Golf Club in Augusta, Georgia. In 1934, Jones and Roberts established an annual tournament for the course that was later called the Masters. The Masters is now one of golf's four major championships.

**Jones, Casey** (1863-1900), was an American railway engineer who gave his life in a train crash to save his passengers and crew. His bravery inspired a number of ballads that made him a folk hero.

Jones was an engineer on the *Cannonball Express*. On April 30, 1900, he volunteered to replace a sick engineer on the train's southbound run from Memphis, Tennessee, to Canton, Mississippi. At Vaughan, Mississippi, the main track was blocked by two freight trains that extended from a siding. Jones's train smashed into the rear of the two freight trains. His body was found in the wreckage with one hand on the brake lever. If Jones had not stayed in the engine to jam on the brakes, the crash would have been much worse. Jones was the only person killed.

The crash might have been forgotten except for Wallace Saunders, a black railway worker. He wrote a song

about Jones based on a number of earlier ballads. The vaudeville team of T. Laurence Seibert and Eddie Newton rewrote Saunders' ballad and added it to their act. They published the song in 1909, and their version became the basis of many ballads about Jones by singers in the United States, Europe, and South Africa.

John Luther Jones was born in southeastern Missouri. He was nicknamed Casey after Cayce, Kentucky, the town where he grew up.

See also *Locomotive* (picture: *Engine 382*).

**Jones, Christopher.** See *Mayflower*.

**Jones, Ernest** (1879-1958), a British doctor, helped introduce the principles of psychoanalysis into the United States, Great Britain, and Canada. He was a friend and strong supporter of Sigmund Freud, the Austrian doctor who developed psychoanalysis as a method of treating mental illness. Jones's three-volume biography, *The Life and Work of Sigmund Freud* (1953-1957), is the most authoritative work on Freud.

Jones was born in what is now Gowerton, near Swansea, Wales. He received his medical degree from University College, London, in 1900. He later studied neurology and psychiatry and became interested in psychoanalysis. Jones met Freud in 1908 and worked from then on to promote psychoanalysis. His efforts contributed to the eventual acceptance of Freud's theories by doctors and other scientists.

Jones helped establish the American Psychoanalytic Association in 1911 and the British Psycho-Analytical Society in 1913. He also served as editor of the *International Journal of Psycho-Analysis*. Jones wrote many articles supporting his theory that psychoanalysis provides greater understanding of art, literature, and other creative fields.

**Jones, Inigo** (1573-1652), was the first major architect of the English Renaissance. He introduced the Palladian influence of northern Italy into English architecture. The term *Palladian* comes from the name of the Italian architect Andrea Palladio (see *Palladio, Andrea*). Its qualities appear in Jones's most admired building, the Banqueting House (1622) at Whitehall Palace in London.

Jones was also famous as a designer of sets, costumes, and stage machinery for dramatic spectacles called *masques*. The works he created for the courts of James I and Charles I influenced later theatrical design. Jones was born in London. He studied Palladio's architecture during trips to Italy in about 1600 and again in 1613-1614. Jones served as *surveyor* (architect) to King

James I from 1615 to 1625 and to King Charles I from 1625 to 1642.

See also *England* (The arts); *Masque*.

**Jones, John Paul** (1747-1792), is often called the *Father of the American Navy*. His heroism against a larger and better-equipped fleet established a tradition that has never been forgotten. His reply to a British demand to surrender, "I have not yet begun to fight," has become a famous U.S. Navy slogan.

Jones was born in Kirkcudbrightshire (now Dumfries and Galloway Region), Scotland. His original name was John Paul. He went to sea when he was 12 years old, and in 1769 was given command of the merchant ship *John*. On a trip to the West Indies, a sailor died a few weeks after Paul had flogged him. Paul was charged with murder. But he was later freed, and became captain of the *Betsey* in 1773. The crew of the *Betsey* mutinied, and one of the crewmen was killed. Paul, again accused of murder, fled to America.

There he added Jones to his name, probably to hide his identity.

The outbreak of the American Revolution gave Jones a chance to go back to sea. He received command of the *Ranger* in June 1777, with orders to sail to France. He was probably the first to fly the new American flag while he was aboard this ship.

In 1779, Jones took command of the *Bonhomme Richard* (*Poor Richard*). On September 23, his squadron met a large British convoy in the North Sea. The *Bonhomme Richard* attacked the leading ship of the force, which was larger and better armed than Jones's ship. After three hours of fighting, the British surrendered.

After the war, a move to promote Jones to rear admiral was defeated, but he was given a gold medal. The American Navy was abolished. Jones then studied naval tactics on French vessels, and wrote on naval tactics. In 1787, Empress Catherine of Russia persuaded Jones to serve as rear admiral in the Black Sea fleet, which was fighting the Turks. Russian officers made Jones's position difficult and, in 1789, he went to Paris.

Jones was appointed U.S. commissioner to Algiers in 1792, but died before the appointment reached him in Paris.

**Jones, LeRoi.** See *Baraka, Amiri*.

**Jones, Sir William** (1746-1794), was one of the first British scholars to study the ancient Indian language of Sanskrit. In 1789, he completed a translation of *Shakuntala* by the poet Kalidasa (see *Kalidasa*). This translation, published in 1799, led to world-wide interest in this great Indian drama. In 1784, Jones founded the Asiatic Society of Bengal, the first of several organizations that studied Asian culture.

Jones was born in London of Welsh parents. He was gifted at languages and taught himself Hebrew as a boy. Before his early death in Calcutta, he had mastered 13 languages and had some knowledge of 28 others.



Engraving (1783) by Jean-Michel Moreau

John Paul Jones



Inigo Jones's Banqueting House at Whitehall Palace, London, shows Italian influence in its columns and arches.



After studying law, Jones went to Calcutta in 1783 and became a judge of the high court. He began to study Sanskrit partly to gain first-hand knowledge of Hindu law and partly because of his fascination with the language. He translated the *Laws of Manu* (1794), a text that became a source of Hindu law.

**Jonestown.** See Guyana (History).



The **Jonquil** has bright yellow flowers and sword-shaped leaves. Jonquils bear three to six blossoms on each stalk.

**Jonquil** is any of several yellow narcissuses that come from southern Europe and northern Africa. The best-known types are a species named *jonquil* and a species called *campernelle jonquil*. The campernelle jonquil is a hybrid bred from a wild jonquil and a trumpet narcissus. Jonquils bear three to six flowers on a stalk about 30 centimetres high. The flowers' petals are grouped around a tube about 2.5 centimetres long. The name *jonquil* comes from the Latin *juncus*, meaning *rush*. Jonquils are planted in autumn.

See also *Narcissus*.

**Scientific classification.** Jonquils belong to the amaryllis family, Amaryllidaceae. The wild jonquil is *Narcissus jonquilla*. The campernelle jonquil is *N. odoros*.

**Jonson, Ben** (1572-1637), was an English playwright and poet. For nearly 100 years after his death, his reputation and influence on English drama at least equalled that of his friend William Shakespeare.

Jonson worked carefully, often spending two years writing a play. He was proud of his Greek and Latin learning and severely criticized other playwrights of his day, including Shakespeare, for errors and carelessness he saw in their writing. In 1616, Jonson became the first playwright to prepare an edition of his own works for publication. He thus advanced the claim of drama to serious consideration as literature. He was also the centre of the first literary "club" at the Mermaid Tavern in London. Other members included Sir Walter Raleigh and playwrights Francis Beaumont and John Fletcher.

Jonson's first important play was *Every Man in his Humour* (1598). It is a realistic and satiric comedy of London life in which each character is motivated by a single *humour* (characteristic) such as jealousy. In Jonson's later satiric comedies, *Volpone* (1606), *The Silent Woman*

(1609), and *The Alchemist* (1610), the humours are generally an aspect of universal human failing such as greed, ignorance, or superstition.

Jonson was born in London. He wrote more than 30 masques and entertainments for the courts of James I and Charles I. Some of his best poetry appears in these shows (see *Masque*). Jonson's poetry was influenced by such Roman writers as Horace. Jonson's most famous song, "Drink to Me Only With Thine Eyes," shows his classical style with its deceptively simple form and vocabulary. His epitaph on the death of his 7-year-old son shows the same skill used to hide his grief.

**Joplin, Scott** (1868-1917), an American composer and pianist, was the leading composer of ragtime, a lively, rhythmic kind of music written chiefly for the piano. Joplin gained his greatest fame for "Maple Leaf Rag" (1899). He was also a well-known ragtime pianist.

Joplin, the son of a former slave, was born in Texarkana, Texas. He left home at the age of about 14 and played the piano in various Mississippi Valley saloons. In 1896, Joplin settled in Sedalia, Missouri. He played the piano in a saloon called the Maple Leaf Club and also began to write music. John Stark, the owner of a Sedalia music store, helped make Joplin famous by publishing "Maple Leaf Rag" and many of his other compositions. They include "The Easy Winners" (1901) and "The Cascades" (1904). Joplin wrote more than 500 pieces of music, including a ballet and two operas.

In 1907, Joplin moved to New York City to find a producer for his stage works. He became increasingly depressed because no one would produce his folk opera *Treemonisha* (1911). Joplin was committed to a mental hospital in 1916 and died there the next year.

Joshua Rifkin, an American pianist, revived interest in Joplin's rags in 1971 by recording an album of them. In 1972, two productions of *Treemonisha* and the publication of *The Collected Works of Scott Joplin* brought Joplin added fame.

See also *Ragtime*; *Jazz* (Early jazz).

**Jordan** is an Arab kingdom on the East Bank of the River Jordan in the heart of the Middle East. The country is bordered by Syria; Iraq; Saudi Arabia; Israel; and the West Bank, a territory west of the River Jordan. Amman is Jordan's capital and largest city.

### Facts in brief about Jordan

**Capital:** Amman.

**Official language:** Arabic.

**Official name:** Al-Mamlakah Al-Urduniyah Al-Hashimiyah (Hashemite Kingdom of Jordan).

**Area:** 91,880 km<sup>2</sup>.

**Elevation:** Highest—Jabal Ramm, 1,754 m above sea level.

**Lowest**—shore of the Dead Sea, about 400 m below sea level.

**Population:** Estimated 1996 population—4,234,000; density, 46 people per km<sup>2</sup>; distribution, 72 per cent urban, 28 per cent rural. 1979 census—2,100,019. Estimated 2001 population—4,980,000.

**Chief products:** Agriculture—aubergines, barley, cabbages, citrus fruit, cucumbers, goats, grapes, melons, olives and olive oil, poultry, sheep, tomatoes, wheat. Manufacturing—batteries, cement, ceramics, detergents, fertilizer, petroleum products, pharmaceutical products, shoes, textiles. Mining—phosphate, potash.

**National anthem:** "Al-Salam Al-Malaki" ("The Royal Salute").

**Money:** Currency unit—Jordanian dinar. One dinar = 1,000 fils



Jordan presents a sharp contrast between its up-to-date cities and its ancient ruins. Jordan's capital and largest city, Amman, *left*, features modern office buildings and apartment blocks. The treasury at Petra, *right*, was carved into the cliffs of this historic trading centre during the 100s A.D.

Much of Jordan's modern history has been shaped by events in an area often called Palestine. Today, Israel, the West Bank, and the tiny Gaza Strip cover this region. Jordan was once called *Transjordan* because it lay across the River Jordan from Palestine.

In 1950, Jordan annexed the West Bank. Jordan lost the West Bank during the Arab-Israeli war of 1967, and Israel has occupied the territory since then. In 1974, Jordan officially gave up political responsibility for the West Bank. King Hussein of Jordan and other Arab leaders gave the Palestine Liberation Organization (PLO) responsibility for any West Bank territory from which Israel might withdraw (see *Palestine Liberation Organization*). But Jordan continued to play important roles in the administration and financial support of the West Bank. In July 1988, King Hussein broke Jordan's ties with the West Bank. He called for the PLO to take over the functions Jordan had handled.

Jordan has a rapidly growing population. About 55 per cent of the people are native Jordanians. Most of the others are Palestinians. About 95 per cent of the people are Muslims. Christians make up a small minority group.

Jordan's varied terrain includes deserts, mountains, deep valleys, and rolling plains. The country has a warm, pleasant climate, but receives little rain.

Jordan has few natural resources. It mines phosphates and potash but lacks the petroleum deposits of its Arab neighbours. Service industries, such as government and commerce, employ the largest number of workers.

Ruins from various periods of Jordan's history still stand. They include those of the Nabataean capital of Petra from the 400s B.C., the Greek and Roman cities of Gerasa (now Jarash) and Philadelphia (now Amman), and several churches built around A.D. 500 during Byzantine rule. Jordan also has an 850-year-old castle built by crusaders at Al Karak.

## Government

**National government.** Jordan is a constitutional monarchy. The king of Jordan has widespread powers. He appoints a prime minister to head the government, as well as members of the Council of Ministers, or cabinet. The king also appoints a 40-member Senate to four-year terms. The Senate is one house of the National Assembly, Jordan's legislature. The other house is the Chamber of Deputies. Its 80 members are elected by the people to four-year terms. King Hussein dismissed the National Assembly in 1974, recalled it in 1984, and dismissed it again in 1988. In November 1989, Jordan held elections for a new Chamber of Deputies, and King Hus-



Jordan is a country in the Middle East. It is bordered by Iraq, Israel, Saudi Arabia, Syria, and the West Bank.



sein appointed a new Senate. The new National Assembly was inaugurated later that month.

**Local government.** Jordan is divided into eight districts called *governorates*. A governor appointed by the king heads each district.

**Courts.** Jordan's judicial system consists of civil, religious, and special courts. Civil courts handle most commercial, criminal, and civil cases. Muslims and various Christian groups each have their own religious courts. These courts rule on personal and family matters, such as marriages, divorces, guardianship, inheritances, and wills. Special courts deal with technical legal matters. The king appoints all judges.

**Armed forces.** The Jordan Arab Army consists of an army of more than 70,000 men, an air force with about 10,000 members, and a small navy. The military employs a high percentage of Jordan's work force, thereby placing a burden on the economy.

People

**Population and ancestry.** Jordan has a population of about 3 million. Most of the Jordanians live in the fertile highlands of the northwest. About two-thirds of the people live in towns and cities with populations of 5,000

or more. Amman has nearly 1 million people. Other cities with over 100,000 people are Az Zarqa and Irbid.

Native Jordanian Arabs account for about 55 per cent of the population. The remaining population of Jordan consists mainly of Palestinian Arabs, most of whom came to the country as refugees as a result of the Arab-Israeli wars of 1948 and 1967. Other Palestinians moved from the West Bank to Amman between the wars, when the West Bank was part of Jordan. Ethnic minorities in Jordan include small numbers of Armenian Christians and Circassian Muslims.

**Languages.** Arabic is the official language of Jordan. English is also widely taught and spoken. The government prints many documents in Arabic and English. Ethnic minorities often speak their own language.

**Way of life.** In urban areas, almost all homes and apartments have electricity and running water. Some urban neighborhoods are densely populated. But in general, living conditions are better than in many other developing countries.

About 10 per cent of Jordan's population lives in crowded Palestinian refugee camps set up by the United Nations. The refugees live in simple, two-room shelters made of concrete.

Jordan  
map index

Cities

Ajlun	6,280 .B	1
Al Aqaba	40,275 .F	1
Al Fuhays	7,400 .C	1
Al Karak	16,930 .D	1
Al Ma'raq	30,100 .B	2
Al Mazar ash Shamaliyah*	9,105 .B	2
Al Muzayyah*	13,940 .D	2
Amman	900,000 .C	1
Anjarah*	10,435 .B	1
An Nu'ayyimah*	8,060 .B	2
Ar Ramtha	36,110 .B	2
Ar Rusayfah*	70,085 .C	2
Ash Shajarah*	6,920 .B	2
Ash Shunah ash Shamaliyah*	11,095 .B	1
As Salt	45,900 .B	1
As Saffah	8,690 .D	1
At Tafla	17,355 .D	1
Aydun*	6,115 .B	2
Ayy*	6,065 .D	1
Az Zarqa	306,500 .B	2
Baqarah*	7,025 .B	2
Huzn	11,530 .B	2
Irbid	161,890 .B	2
Jarash	13,980 .B	2
Kufrinjah*	11,870 .B	1
Ma'an	15,815 .E	1
Madaba	38,700 .C	2
Na'ur*	7,410 .C	2
Sahab*	16,290 .C	2
Sakhrat*	7,145 .B	2
Suwayfiyah*	33,900 .B	2
Wadi as Sirhan*	34,630 .C	2
Wadi Musa	7,410 .E	1

\*Does not appear on map; key shows general location.  
Source: 1988 official estimates.

Physical features

Ard as Sawwan (plain)	..E	4
Dead Sea	..C	1
East Ghor Canal	..B	1
Gulf of Aqaba	..F	1
Jabal al Ashaghit (mountains)	..B	4
Jabal Ramm (mountain)	..F	1
Jabash Ruins	..B	2
Mediterranean Sea	..A	1
Mount Nebo	..C	2
Mount Pisgah (ridge)	..C	1
Petra Ruins	..E	1
River Jordan	..B	1
Sea of Galilee	..A	1
Syrian Desert	..A	4
Wadi al Arabah (seasonal stream)	..E	1
West Bank	..B	1
Yarmuk (river)	..B	2
Zarqa (river)	..B	2



Most rural Jordanians live in villages and have homes built of stone and mud, or of concrete. Many villagers grow crops and raise goats and chickens. Other villagers work in construction and mining. Bedouin nomads make up under 5 per cent of the people. They live in tents and move from place to place with their camels and sheep. Since the mid-1900's, many Bedouins have settled in towns and villages.

Most Jordanian men and women wear Western-style clothing. The men may cover their head with a cloth called a *kaffiyeh*. Some women wear long, loose-fitting dresses. Some rural Jordanians, including Bedouin men and women, wear traditional flowing robes.

**Food and drink.** Jordanians eat a variety of foods, including cheese, cracked wheat, flat bread, rice, vegetables, and yoghurt. Chicken and lamb are popular meats. Popular beverages include coffee, fruit juices, mineral water, soft drinks, and tea.

**Recreation.** Jordanians enjoy watching and playing various sports, particularly basketball, camel racing, horse racing, martial arts, and soccer. Folk dances, such as the *debke*, are popular at family events.

**Religion.** Islam is the official religion of Jordan. About 95 per cent of Jordan's people are Muslims. Almost all of them follow the *Sunni* or orthodox branch of Islam. Most other Jordanians are Christians.

Islam deeply affects the lives of many Jordanians. Devout Muslims pray five times a day, attend a *mosque* (an Islamic house of worship), fast, give money or goods to the poor, and make a pilgrimage to Mecca, Saudi Arabia, the sacred city of Islam.

Most of the Jordanian Christians are members of the Eastern Orthodox Church. Other Christian groups include Roman Catholics and Protestants.

**Education.** Jordan requires children to attend school for a minimum of nine years. Most children go to state schools. A United Nations agency operates schools for Palestinian refugees. More than 70 per cent of the adult population can read and write.

Jordan has many community colleges, vocational schools, and technical institutions. More than 28,000 students attend Jordan's four universities. An even larger number of Jordanians attend universities in other Arab countries, Europe, and the United States.

**Arts.** Jordanian craftworkers make a variety of decorative and useful objects, including jewellery, coffee-pots, daggers, and Islamic prayer beads. Many mosques and other buildings feature delicate geometric designs called *arabesques*. Other art forms include elaborate cross-stitch embroidery and beautiful Arabic *calligraphy* (fine handwriting).

### Land and climate

Jordan has three main land regions: (1) the Jordan River Valley, (2) the Transjordan Plateau, and (3) the Syrian Desert.

**The Jordan River Valley** is a deep, narrow valley that extends, in Jordan, from just south of the Sea of Galilee to the Dead Sea. The River Jordan flows through the centre of the valley and ends in the Dead Sea. Summer temperatures in this region regularly exceed 38° C. The valley receives little rain. But since the 1960's, Jordan has developed an irrigation system that allows extensive cultivation of fruits and vegetables. The Jordan River Valley is part of the *Great Rift Valley*, a deep cut in the earth's surface. Another part of the Great Rift Valley extends from the Dead Sea to Al Aqabah (see *Great Rift Valley*).

**The Transjordan Plateau** rises steeply from the Jordan River Valley and the Dead Sea. The plateau covers a wedge-shaped area that begins at the Syrian border and narrows as it extends southward to the region around Ma'an.

The plateau includes Jordan's largest cities and most of the country's farmland. Annual rainfall averages about 65 centimetres in the north. Rainfall on the southern plateau is less dependable and averages between 25 and 40 centimetres a year—barely enough to grow wheat. Average temperatures range between 18° and 30° C during summer and between 4° and 11° C during winter.

**The Syrian Desert**, also called the northern Arabian Desert, is a vast wasteland to the east and south of the plateau. The desert receives less than 25 centimetres of rain annually. Summer temperatures may reach 49° C.

### Economy

Jordan has a developing economy based on free enterprise. Service industries make up the largest part of the economy. The economy depends on foreign aid and



**The Jordan River Valley** is Jordan's major agricultural region. This hot, dry area was once largely unsuitable for farming. Today, irrigation and the use of plastic-covered hot-houses, *lower left*, allow farmers to grow a variety of fruits, vegetables, and other crops. The land rises, *background*, toward the Transjordan Plateau east of the valley.



on the larger economy of the Middle East. Many Jordanians work abroad, in the service industries of wealthy, oil-producing Arab countries. These workers send money to their families in Jordan.

**Service industries** employ about 70 per cent of Jordan's workers and account for more than 65 per cent of the total value of economic production. The government and military employ many Jordanians. Others work in education, trade, and transportation. Tourism helps support many businesses, including hotels and restaurants. Other important service industries include banking and insurance.

**Manufacturing and mining** employ about 12 per cent of Jordan's workers and account for about 20 per cent of the total value of economic production. Large plants include a petroleum refinery and fertilizer and cement factories. Smaller industries manufacture batteries, ceramics, cigarettes, detergents, food products, pharmaceutical products, shoes and textiles. Most of Jordan's small factories are located near Amman. Mining operations produce phosphates and potash, which are used in the production of fertilizer.

**Agriculture.** Because Jordan is mostly desert, only 3 per cent of the land is cultivated. Chief crops of the Jordan River Valley include citrus fruits and such vegetables as aubergines, cabbages, cucumbers, melons, and tomatoes. On the Transjordan Plateau, farmers cultivate such grains as barley and wheat; grapes, olives, and other fruits; vegetables; and nuts. Modern farming methods have become increasingly widespread, especially in the Jordan River Valley.

**Foreign trade.** Jordan's main exports are phosphates, chemicals, potash, fruits and vegetables, and manufactured products. Imports include machinery, petroleum, grain, and meat. Jordan's chief trading partners are Saudi Arabia, the United States, Iraq, Italy, Japan, Great Britain, Germany, and India.

**Transportation and communication.** Jordan has a well-developed transportation system. Paved highways link Jordan with all its neighbours. Al Aqabah, Jordan's only port has been extensively developed to handle cargo shipped through the Red Sea. Amman has a major international airport.

Four daily newspapers—three in Arabic and one in English—are published in Jordan. The government owns and operates the country's radio and television stations. An average of about 1 out of 5 Jordanians owns a radio and about 1 out of 8 owns a TV set. Although the government closely controls communications, there is more freedom of expression in Jordan than in many other Arab countries in the Middle East.

**Energy.** Except for one dam that produces electricity, Jordan depends on imported oil to generate electricity. Electric power is available throughout most of Jordan.

## History

**Early days.** Written history first mentions what is now Jordan in about 2000 B.C., when Semitic nomads entered the region. By about 1200 B.C., four Semitic peoples—the Ammonites, Amorites, Edomites, and Moabites—farmed and traded in lands east of the River Jordan. During the 900's B.C., the Israelites under Kings David and Solomon conquered and ruled the region. But Moabites led by King Mesha regained control about

850 B.C. Later, the Egyptians, Assyrians, Chaldeans, and Persians invaded and controlled the area. The Nabataeans, a trading people who spoke Arabic, came to power in the 400's B.C. The Nabataeans ruled from their unique capital city carved out of the rose-coloured stone cliffs of Petra. Their architecture and art were strongly influenced by the Greeks after about 331 B.C., when Alexander the Great conquered the area. After his death, the Seleucids ruled the northern part of present-day Jordan, and the Nabataeans continued to control the southern part.

In the 60's B.C., the Romans took control of Jordan. They built vast trading centres at Philadelphia (now Amman) and Gerasa (now Jarash). When the Roman Empire split in the late 300's A.D., Jordan became part of the Byzantine Empire, also called the East Roman Empire.

**Arab and Ottoman rule.** In 636, Arab Muslims from the Arabian Peninsula defeated Byzantine armies in the northern Jordan region. The conquering Arabs established their language and religion among the people who lived in the region. They developed an important route through Jordan for Islamic pilgrimages to Mecca.

At the close of the 1000's, Christian crusaders from Europe conquered the eastern Mediterranean coast, including Jerusalem and parts of Jordan. The region had great religious significance for both Christians and Muslims. In 1187, the Muslim leader Saladin drove out the crusaders. His successors were overthrown by Egyptian Mamelukes in 1250.

In 1517, Ottoman Turks easily defeated the Mamelukes, and most of Jordan became part of the Ottoman Empire. During Ottoman rule, the region's only attraction for outsiders was the pilgrimage route. Bedouins and peasant farmers inhabited the region. The Ottomans did not govern Jordan directly until the late 1800's, when they brought Circassian families to settle in and near Amman. In 1908, a railway was completed along the pilgrimage route, stimulating Jordan's economy.

**Independence.** During World War I (1914-1918), Sherif Hussein of Mecca in Saudi Arabia led an Arab revolt against Ottoman rule. With the help of Great Britain, the revolt led to the defeat of the Ottomans in the Middle East and the establishment of several Arab states.

After the war, the League of Nations appointed Britain to administer lands east and west of the River Jordan as the mandate of Palestine (see **Mandated territory**). In 1921, the British gave the territory east of the Jordan partial self-government by making it an emirate called Transjordan. Abdullah, a son of Hussein, ruled Transjordan as *emir* (prince) under British supervision. In 1922, Transjordan became a mandate separate from Palestine.

Abdullah made Amman the capital of Transjordan and established his authority with considerable help from Great Britain. In 1923, Britain declared that Transjordan should become an independent state. But the British kept control of the state's defences, finances, and foreign affairs. Transjordan gained complete independence in 1946 and was renamed Jordan. But Jordan still depended on Britain for economic aid, and British officers commanded the Arab Legion, Jordan's army.

**The Palestinian conflict.** In 1917, Britain issued the Balfour Declaration. This document supported the establishment of a Jewish homeland in Palestine without violating the civil and religious rights of the non-Jewish

population. At that time, thousands of Jews had emigrated to Palestine, and after World War I, tens of thousands more came. Many came from Europe during the 1930's and 1940's because of German persecution. The Jewish immigration led to fighting between Jews and Palestinian Arabs for control of the land.

Jordan became involved in the Palestinian conflict in 1948. That year, the British mandate of Palestine ended, and the Jews established the state of Israel. Jordan and other Arab countries at once went to war with Israel. When the war ended in January 1949, Israel occupied much of Palestine. Jordan held the West Bank, and Jerusalem was divided between Israel and Jordan. In 1950, Jordan officially annexed the West Bank.

Jordan's population of about 400,000 more than tripled as a result of the war. It gained about 400,000 Palestinian residents of the West Bank and about 450,000 Palestinian refugees from Israel. Some refugees brought skills and savings to Jordan and set up businesses.

By the mid-1950's, Jordan began to develop cement, petroleum-refining, and phosphate industries. Other parts of the Jordanian economy, including agriculture, manufacturing, and tourism, also began to grow.

In 1951, Palestinians assassinated Abdullah. His son, Talal, succeeded him. But Talal was removed from the throne in 1952 because of mental illness. Talal's son, 17-year-old Hussein, succeeded him but did not officially take up the duties of king until 1953.

During the 1950's, Jordan remained unstable. Arab countries competed for political power in the Middle East, and the United States and the Soviet Union each sought to extend influence in the region. In 1956, King Hussein replaced the British officers in the Arab Legion with Jordanians and renamed it the Jordan Arab Army. The army helped to put down a plot to overthrow Hussein in 1957.

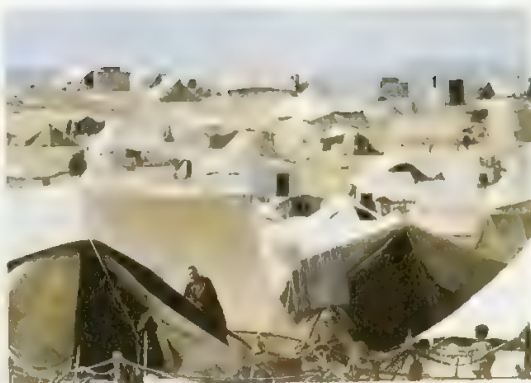
Tensions between Israel and Arab nations, including Jordan, increased during the early 1960's. Arabs and Israelis disagreed over rights to the waters of the River Jordan. Continuing problems of the Palestinian refugees led to the creation of the Palestine Liberation Organization in 1964. The PLO organized raids into Israel from Jordan and Lebanon, and Israel responded with raids into Arab territory. Also in 1964, Jordan and other Arab nations united their armies under one command.

**The 1967 war.** In June 1967, Israel defeated Jordan, Egypt, and Syria in a six-day war. Jordan lost east Jerusalem and all of the West Bank to Israeli occupation.

About 300,000 Palestinians—both refugees and permanent residents—who had been living in the West Bank fled east. Jordan's economy suffered from losing farmlands and tourist attractions on the West Bank.

**Civil war.** After the 1967 war, many Palestinian refugees joined guerrilla groups to fight Israel and regain their homeland. By early 1970, these forces represented an unofficial second government within Jordan.

On Sept. 17, 1970, the Jordanian army attacked the Palestinian guerrillas. Syrian tanks and troops entered Jordan to support the Palestinians, but they later withdrew. Jordan's army defeated the Palestinians within a month. But fighting between the army and isolated guerrilla groups continued into 1971 and beyond. Drained by these ongoing battles, Jordan played only a minor role in the 1973 Arab-Israeli war.



**Palestinian refugee camps** in Jordan swelled after the 1967 war between Arab nations and Israel. Many Palestinians fled to these camps after Israel occupied their homes in the West Bank.

**Relations with the West Bank.** At a meeting of Arab leaders in 1974, the PLO was declared the only representative of the Palestinian people. Hussein and other Arab leaders agreed that the West Bank should become part of an independent Palestinian state in the event of an Israeli withdrawal. They gave the PLO responsibility for any West Bank territory from which Israel might withdraw. However, Jordan continued to play important roles in the West Bank. For example, the Jordanian government paid the salaries of many West Bank public service workers.

**Recent developments.** Disagreements between Jordan and the PLO over Palestinian policy led to a major break in 1986. King Hussein tried to set up new leadership for the Palestinians. But the next year, the Palestinians demonstrated their loyalty to the PLO in an uprising against Israel's occupying forces in the West Bank. In 1988, Hussein broke Jordan's political and administrative ties to the West Bank. He called for the PLO to take over the financial support and other functions that Jordan had handled.

In August 1990, forces from Iraq invaded and occupied Kuwait. The United States and many other countries, including many Arab countries, opposed the invasion and formed an alliance. In January 1991, war broke out between the allied nations and Iraq. Jordan's relations with some Arab countries became strained when it remained neutral in the conflict. Jordan's economy suffered after the invasion from a decrease in trade with Iraq and other Arab states. See **Persian Gulf War**.

In 1993, Israel and the PLO agreed to a plan for self-government for, and Israel's withdrawal from, the West Bank and the Gaza Strip. In May 1994, the plan went into effect in the West Bank city of Jericho and in the Gaza Strip. In October of the same year, Jordan and Israel signed a peace treaty that formally ended the state of war that had technically existed between the two countries since 1948.

**Related articles in *World Book* include:**

Amman  
Arab League  
Arabs  
Dead Sea  
Dead-Sea Scrolls

Hussein I  
Israel (History)  
Jerusalem  
Jordan, River  
Middle East

Mount Pisgah  
Palestine  
Petra  
Samaria  
West Bank



## Outline

## I. Government

- A. National government
- B. Local government

- C. Courts
- D. Armed forces

## II. People

- A. Population and ancestry
- B. Languages
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- D. Food and drink

- E. Recreation
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## III. Land and climate

- A. The Jordan River Valley
- B. The Transjordan Plateau

- C. The Syrian Desert

## IV. Economy

- A. Service industries
- B. Manufacturing and mining
- C. Agriculture

- D. Foreign trade
- E. Transportation and communication
- F. Energy

## V. History

## Questions

- What role has Great Britain had in Jordan's history?
- What are Jordan's land regions?
- What types of clothing do Jordanian men and women wear?
- When did Jordan gain control of the West Bank? How did Jordan lose the territory?
- What powers belong to the king of Jordan?
- How has irrigation helped agriculture in Jordan?
- What role does Islam play in Jordanian life?
- Why was Jordan once called *Transjordan*?
- What are Jordan's chief manufactured products?
- What is Jordan's capital and largest city?

**Jordan, Ernst Pascual** (1902-1980), was a German physicist. He helped develop *quantum mechanics*, a field of physics that describes the structure of atoms and the motion of atomic particles.

In 1925, Jordan helped two other German physicists, Max Born and Werner Heisenberg, write the first mathematical formulation of quantum mechanics. By 1928, Jordan developed *second quantization*, a method of analysing interactions between many atomic particles or waves. He also contributed to the knowledge of the subatomic particles called *neutrinos*, to the theory of gravitation, and to other areas of physics. Jordan was born in Hanover, Germany.

**Jordan, River**, the only important river of Israel and Jordan, rises in the springs of Mount Hermon in Syria. It flows for about 160 kilometres and then falls to the area of Lake Hula (now completely drained). The Jordan empties into the Dead Sea, about 400 metres below sea level (see *Dead Sea*).

In the 16 kilometres from the Lake Hula area to the Sea of Galilee, the river falls 210 metres. Its many rapids make navigation impossible. Much of the rest of the river is not more than about 1.5 metres deep, except during March. Then, the melting snow from Mount Hermon frequently floods the little river valley, which is from 0.8 to 3.2 kilometres wide and lies in the centre of the larger valley.

The Bible says Joshua led the Children of Israel over the River Jordan into the Promised Land (Josh. 3: 1-17). Christ was baptized in the waters of the River Jordan by John the Baptist (Matt. 3: 13-17).

The southern half of the river forms the border between the Israeli-occupied West Bank and Jordan. The northern section forms part of Israel's borders with Jordan and Syria. The waters of the Jordan are used for irrigation and to produce electricity.

**Jorgensen, Jorgen** (1780-1841), was a Danish adventurer who settled in Sydney in 1801. In 1809, Jorgensen took a merchant ship to Iceland, which was then governed by Denmark. There, he arrested the Danish governor. Jorgensen sent notice to the British government that he had annexed Iceland for Britain. Britain refused to recognize his act. Meanwhile Jorgensen ruled Iceland as a self-appointed king. Two months later, a British naval officer arrested Jorgensen and restored the legal Danish governor.

In 1820, Jorgensen was sentenced to be transported for petty crime. He landed in Van Diemen's Land (now Tasmania) in 1826. He received his pardon after solving a crime concerning the theft of 4,000 pounds (8,000 Australian dollars). Jorgensen also became a constable and editor of a local newspaper.

**Joseph** was the husband of Mary, the mother of Jesus, and a descendant of David, the second king of Israel. Mary was found to be pregnant after she had been  *betrothed* (promised in marriage) to Joseph, but before the two were married. Joseph was not the father of the child. Joseph took steps to break their agreement to marry, but did so in a way that would not put Mary to



Detail of the *Méroude Annunciation* (about 1425), an oil altarpiece on wood panel by Robert Campin, the Metropolitan Museum of Art, the Cloisters Collection, New York City

**Joseph**, the husband of the Virgin Mary, was a carpenter. This painting shows him at his workbench making a mousetrap.

shame. An angel revealed to Joseph that the child was the son of God. Joseph then took Mary as his wife and legally accepted her child as his own by naming Him.

Joseph and Mary raised Jesus according to traditional Jewish customs and rites. They had Jesus circumcised on the eighth day after His birth and presented the baby at the Temple for the prescribed rites of purification and dedication of the first born.

Little is known about Joseph's life after he and his family settled in Nazareth. Joseph was a craftsman, at least a carpenter and perhaps a contractor. In the Bible, the Gospel accounts seem to indicate that he was still alive when Jesus, at the age of 12, spoke to scholars in the Temple (Luke 2: 41-51), and perhaps at the start of Jesus' public ministry (John 1: 45), and even during Jesus' ministry (John 6: 42). But there are no later mentions of Joseph, though the Gospels mention Mary. There is no mention of Joseph at Jesus' death and no indication of his presence among the first Christian community in Jerusalem. Jesus entrusted Mary to the care of the apostle John during the Crucifixion, indicating that Joseph had probably died before this time. For more information about Joseph's life, see *Jesus Christ (Early life)*.

Early Christian legends portrayed Joseph as an aged widower with children when betrothed to Mary. But based on marriage customs of the times, Joseph must have been in his mid-teens when he married Mary.

The Eastern Orthodox, Roman Catholic, and Episcopal churches honour Joseph as a saint. Since the Middle Ages, Christian devotion of Joseph has grown. In 1962, Pope John XXIII honoured Joseph by decreeing that Joseph's name be included immediately after Mary in the list of saints in the Canon of the Mass. His main feast day is March 19.

See also *Mary*.

**Joseph** was the Hebrew boy who was sold into Egypt by his brothers and became the great prime minister of Pharaoh. The story of Joseph is one of the most interesting dramas of all time. It is powerfully told in the Book of Genesis in the Bible. Joseph was the 11th of the 12 sons of Jacob. He was Jacob's favourite son.

Joseph helped his older brothers tend the flocks in the fields. One day, when he was 17, he appeared among them in a coat with long sleeves. It was the gift of his father. Peasants or herders could not wear such a coat, because its long sleeves would get in the way. So the coat was a sign that Joseph was intended for some better occupation. The older brothers were jealous of Joseph.

Their jealousy became hatred when Joseph told them about two dreams he had. The dreams were visions of his future power as a great ruler. But he did not know what they really meant. He said he dreamed that he was binding wheat in a field with his brothers. Suddenly, his sheaf stood upright while the sheaves of his brothers gathered round and bowed down to it. In his second dream, the sun, moon, and 11 stars bowed to him.

One day, when the brothers saw Joseph coming, one of them said, "Behold, this dreamer cometh. Let us slay him." But they agreed to put him in a deep pit without harming him, after taking his beautiful coat.

Later, a band of Ishmaelites appeared. Their camels were carrying spices and precious things from Gilead into Egypt. Judah and some of the other brothers drew

Joseph out of the pit and sold him to the Ishmaelites for 20 pieces of silver. The brothers then killed a goat, tore the coat, stained it with the goat's blood, and took it to Jacob. They told him a wild beast had destroyed Joseph.

**A slave in Egypt.** The band of Ishmaelites carried Joseph to Egypt. There, Potiphar, the captain of Pharaoh's guard, bought him. Joseph served his master so faithfully that he became overseer of the household. But he offended Potiphar's wife, because he would not return her love for him. She had him put into prison. But Joseph soon won the jailer's confidence, and was placed in charge of all the prisoners.

Pharaoh's chief butler and baker offended their lord, so they were also put in prison. One night they both had strange dreams. Joseph interpreted the dreams correctly for them. The butler, he said, would be free in three days, but the baker would be hanged at the same time. Before the butler left the prison, Joseph asked him to try to obtain his pardon. But the butler forgot Joseph.

Two years later, Pharaoh had two very strange dreams which no one could understand. Then, the butler remembered Joseph. Pharaoh sent for Joseph to come and interpret his dreams. Pharaoh's first dream was that seven fat cows were grazing in the reeds near the river. Seven lean cows came and devoured the fat cows. The second dream was that seven good ears of grain sprang up, but seven thin ones ate them. Joseph said the dreams meant that there would be seven years of plenty in Egypt, followed by seven years of famine. He advised Pharaoh to choose a wise man to gather the extra food in times of plenty to eat when famine came.

**The prime minister.** Pharaoh was so pleased with Joseph's wisdom that he chose him to oversee the grain storing of all Egypt. For seven years, there were abundant crops. Then came the famine. No grain had been saved in Canaan. Jacob and his family soon needed food. The 10 oldest sons went into Egypt to buy food. They did not recognize Joseph as their brother when they were brought before him because 20 years had passed. But Joseph knew them because the older ones had changed very little. He pretended to think that they were spies and asked them about their home. They said they had another brother, Benjamin. Joseph told them to go get him to prove they spoke the truth. As the brothers left, he ordered their bags to be filled with grain. The money which they paid him was hidden in the bags. Joseph kept one brother, Simeon, as a hostage.

The old father, Jacob, at first refused to let Benjamin go with the brothers. But after all the food was eaten, he consented. When Joseph saw Benjamin, he longed to embrace him and weep for joy. Benjamin was his own brother, the son of Rachel, Joseph's mother, while the others were all half-brothers. But Joseph tested their character before he told them who he was. He found that they were thoughtful of their father and Benjamin. Then, Joseph made himself known to them.

The brothers were ashamed to look at Joseph, but he forgave them for their wickedness. After their happy reunion, he told them to bring their father and families to Egypt, where they would have plenty of food.

**Settling his family in Egypt.** At first Jacob could not believe that Joseph still lived and was a ruler in Egypt. But when he saw the wagons sent to carry his family into the new land, he said, "It is enough. Joseph my son



is yet alive; I will go and see him before I die." So his children, grandchildren, and great-grandchildren journeyed to the land of Goshen, where Joseph met them.

Joseph had two sons, Ephraim and Manasseh, who became the fathers of the two tribes that bore their names. Joseph, his sons, and his brothers were the legendary ancestors of the *Twelve Tribes of Israel*. Their story connects the stories of the patriarchs in Genesis and the deliverance in Exodus.

See also **Benjamin**; **Jacob**; **Moses**; **Pharaoh**.

**Joseph of Arimathea** was a wealthy member of the Jewish *Sanhedrin* (ruling council) in Jerusalem at the time of Jesus. He did not support the Sanhedrin's actions in condemning Jesus. After the Crucifixion, Joseph received permission to take the body of Jesus. He placed it in his own newly carved tomb. The Gospels in the Bible suggest that Joseph was a secret disciple of Jesus.

Joseph came from Arimathea, a town of uncertain location but probably east of what is now Tel Aviv, Israel. He is said to have taken care of Mary after the Ascension of Jesus until her death. According to another story, Joseph kept the Holy Grail, the cup Jesus used at the Last Supper.

See also **Holy Grail**; **Calahad**, **Sir**.

**Josephine** (1763-1814) was the beloved wife of Napoleon Bonaparte, one of French history's most important figures. She was the daughter of a French planter in Martinique, in the West Indies. She married Vicomte Alexandre de Beauharnais when she was about 17. They had a son, Eugène, and a daughter, Hortense. The vicomte was one of the last victims of the Reign of Terror of the French Revolution. Josephine was in prison for a time, and narrowly escaped being sent to the guillotine.

But she soon became friendly with Vicomte de Barras, one of the leaders of the government at the time. Through his influence, she got back some of her husband's property, and she became a leader in the fashionable society of Paris. It was at Barras' home that Josephine met Napoleon. He immediately fell in love with her, and they were married in 1796.



Josephine

**Her marriage.** Josephine was a beautiful woman, and her marriage naturally made her a subject of gossip. It was often reported that she had love affairs while Napoleon was absent during his military campaigns. Such reports frequently reached Napoleon and made him angry. There are also many stories about her influence over her husband, but most are difficult to prove.

Undoubtedly Napoleon found much joy and relaxation in her companionship. She was an intelligent woman, and may have given him considerable advice. It is certain that she was graceful and stately in her public appearances, which made her an asset to Napoleon in his climb to power. When Napoleon was crowned emperor, Josephine came down from her throne to kneel at the altar before her husband. He took her small crown

in his hands and placed it on her head. He lifted it off once or twice in a playful manner, as if to tell her that she should wear it lightly.

Napoleon and Josephine had no children. By 1809, Napoleon was afraid that he might die without a son, and that his empire would crumble. He finally decided he would have to divorce Josephine. One night after dinner he told her of his decision, as gently as he could. They said their last goodbyes. The empress begged her husband not to forget her. She promised to care for her health, and never to doubt his love. She retired with imperial honours to Malmaison, the small estate near Paris which Napoleon had bought for her.

**Her last years.** Napoleon married Marie Louise of Austria in 1810. A year later, a son was born to them (see **Marie Louise**; **Napoleon III**). Josephine heard the cannon shots announcing the birth, and Napoleon sent her a special message. She said to her household, "We, too, must rejoice. I will give you a ball, and the whole city will be glad with us." Napoleon once brought his son to Malmaison, without Marie Louise's knowledge. Josephine had begged to see him.

Marie Louise was not allowed to go with Napoleon to exile at Elba. Josephine wrote a letter to Napoleon, and asked permission to join him. He was forced to write back stating that it was impossible. But before his letter arrived, Josephine had died.

See also **Napoleon I**.

**Josephus, Flavius** (A.D. 37?-100?), a Jewish historian, wrote *Jewish Antiquities*, a 20-volume history of the Jews from their beginnings to the close of Nero's reign. Josephus, born Joseph ben Matthais in Jerusalem, was of royal and priestly descent. He was governor of Galilee when war broke out between the Jews and the Romans in A.D. 66. The Roman army defeated him, and held him a semi-prisoner for three years. After Jerusalem fell in A.D. 70, Josephus went to Rome.

**Joshua**, a lieutenant of Moses, led Israel in the conquest of Palestine after Moses' death. He was from the tribe of Ephraim. His story is told in the Old Testament book of the Bible that bears his name. Joshua also appears in the Book of Exodus and the Book of Numbers.

The Book of Joshua describes Israel's conquest of Palestine as swift, ruthless, and complete. First, Joshua's army crossed the River Jordan and besieged Jericho. The walls of Jericho fell flat at the blast of the Israelites' trumpets. Israel then took all Palestine with three lightning-fast campaigns, killed the area's inhabitants, and divided the land among the 12 tribes of Israel. Joshua later united all Israel in a covenant with God.

The Book of Judges suggests that the Israelite conquest of Canaan was slower and less complete. Archaeological evidence places it in the 1200's B.C., and shows that much of the destruction may actually have been caused by Philistines or the internal struggles of Canaanites (see **Philistines**; **Canaanites**).

**Joshua tree.** See **Tree** (picture); **Yucca**.

**Josiah** was one of the last and most unselfish rulers of Judah. He ruled from about 639 B.C. to 609 B.C. Josiah came to the throne at the age of 8, after his father, Amon, was killed. After 18 years, a scroll called "the book of the law" was found while the Temple was being repaired. According to the Bible, this book was sent to Huldah, the prophetess, who authenticated it (II Kings

22). Josiah used the book as his guide for major religious reform. He stopped idolatry throughout Judah and reinstituted the feast of the Passover in Jerusalem. The main part of Deuteronomy may have come from "the book of the law."

During Josiah's rule, the sprawling Assyrian empire was collapsing. In 626 B.C., Babylonia broke away and established its freedom. Assyria soon became too weak to demand tribute from its many provinces. Under Josiah's rule, Judah also claimed independence.

An allied army of Babylonians and Medes captured Nineveh, the Assyrian capital, in 612 B.C. Pharaoh Necho II of Egypt then led his army into Palestine and Syria in 609 B.C. He met Josiah at Megiddo, and Josiah was fatally wounded in the ensuing battle.

**Joule**, a unit in the metric system, is used to measure work and energy. Its symbol is J. One joule is the amount of work done when a force of 1 newton acts on an object that moves 1 metre in the direction of the force (see Newton).

The joule is used to measure all forms of energy, including heat, electrical energy, and mechanical energy. One joule equals about 0.24 calorie. A calorie is the amount of heat needed to raise the temperature of 1 gram of water by 1 Celsius degree. One joule of energy per second is required to pass an electric current of 1 ampere through 1 ohm resistance. One joule per second is called a *watt*, a unit of electric and mechanical power (see Watt).

In the English system, work and energy are measured in foot-pounds. One joule equals about 0.74 foot-pound. The joule was named after the English physicist James P. Joule.

**Joule, James Prescott** (1818-1889), a British physicist, shared in discovering the law of the conservation of energy. Two German physicists, Hermann von Helmholtz and Julius von Mayer, and the British physicist, Lord Kelvin, also worked on the law. The law states that energy used up in one form reappears in another and is never lost.

Joule stated a law, now called *Joule's law*, in 1840, that heat is produced in an electrical conductor (see Heat [Learning about heat]). The unit of work or energy, the *joule*, is named in his honour. Joule was born in Salford, England.

**Journal.** See Diary.

**Journalism** is one of the most important professions. It informs citizens about events in their community, the nation, and the world. The reports of journalists also help people form opinions about current affairs. Journalists inform the public through several means of communication, especially newspapers, magazines, radio, and television. These means of communication are often referred to as the *press* or the *news media*.

Every day, journalists throughout the world gather, write, and edit material for thousands of news stories. Local reporters, for example, cover school board meetings, fires, sports events, and other local stories. Other



**Reporters gather news** of a fast-breaking political story at a press conference with a government official. An important event may be covered by journalists from many news organizations. Their stories are reported in newspapers and magazines and on radio and television.



journalists, including foreign correspondents, cover national and international news.

In democratic countries, people depend on the news media for the fair and truthful reporting of current events. These nations grant the press freedom to report news and opinions without government interference. Freedom of the press encourages the exchange of ideas among citizens, which is essential for a democracy to work. In government-controlled societies, however, the news media serve as an instrument of the state. The press in these countries slants the news to support the policies of the government.

### Fields of Journalism

There are five chief fields of journalism: (1) newspapers, (2) news services, (3) magazines, (4) radio, and (5) television. Related fields include advertising, book publishing, and public relations. See **Advertising**; **Public relations**; and **Publishing**.

**Newspapers** cover more stories than do any of the other news media. They also cover stories in greater detail. However, newspapers cannot compete with radio or TV to be first to report the news. Radio and TV stations can interrupt their programmes at any time to broadcast a news bulletin. A paper must be printed and distributed before it can bring a story to the public.

The great advantage of newspapers over radio and TV is that they can report stories in depth. Newspapers also have other advantages over radio and television. Newspapers permit readers to absorb the news at their own pace and on their own schedule. Readers can skip items that do not interest them. Newspapers therefore can print certain material that appeals to only a small percentage of readers. Such material includes death notices, stock market listings, and classified advertisements. Listeners to news broadcasts, however, cannot control the speed or the time of day at which the news is announced. Also, news broadcasts generally do not report items that interest relatively few people. A radio or TV news broadcast may lose much of its audience if its stories do not appeal to a large number of listeners. For an extensive discussion of newspapers, see **Newspaper**.

**News services.** Large newspapers, national news magazines, and national radio and television networks have reporters stationed in major cities at home and abroad. The rest of the press relies chiefly on news services for national and international news. News services have journalists who report news from around the

world. Their stories, as well as photographs, are transmitted mainly by satellite to members of the press that pay for the service. News services were formerly known as *wire services* because they sent news reports over wires to printing devices called teleprinters. News services may supply as much as 90 per cent of the foreign news and up to 75 per cent of the national news reported by the press in some countries.

Other news services include *news syndicates* and *feature syndicates*. The major news syndicates are owned by newspapers that have a large staff of reporters at home and abroad. Feature syndicates are operated by business organizations that sell such material as advice columns, comic strips, and opinion columns.

Important news services include Agence France-Presse in France, Xinhua in China, Reuters in the United Kingdom, Kyodo in Japan, Tass in Russia, and Associated Press (AP) in the United States. See **News service**.

**Magazines**, like newspapers, enable people to absorb the news at their own pace and to select only the stories that interest them. In general, the literary quality of magazines, which are published weekly or at longer intervals, is superior to that of newspapers. News magazines, usually published weekly, summarize and analyse the biggest national and international news stories of the preceding week. The magazines also include regular articles on developments in the arts, business, education, science, and other fields.

Many magazines specialize in covering the news in a specific area, such as fashion, television entertainment, or sports. Opinion magazines publish thoughtful articles on politics and the arts. Trade and business magazines provide news of a particular profession or industry, such as medicine or publishing. See **Magazine**.

**Radio** is generally the first of the news media to report a local story or a news service bulletin. A radio announcer can interrupt a programme with a news flash as soon as the report comes in. Most stations present regular news bulletins every half-hour or hour. A few stations broadcast the news continuously. The national radio networks broadcast major news events.

Millions of people depend on the radio for regularly scheduled news bulletins. However, most radio news bulletins do not report the news in detail. In a five-minute broadcast, for example, the stories average less than 30 seconds each. Many people also rely on radio for weather forecasts and traffic reports. See **Radio**.

**Television** is the chief source of news for many households around the world. TV does what none of the



The newsroom of a newspaper handles stories from throughout the world. Staff reporters cover most local events. National and international news comes in chiefly by news services

other media can: it brings the sights and sounds of some important news events by means of filmed, taped, or live reports. Like regular radio news bulletins, daily TV news programmes provide only brief accounts of relatively few stories. But the visual aspect of a TV news story can often help viewers understand the story.

In addition to daily news reports, television covers special news events. Coverage of such an event may replace many hours of regular TV shows. For example, television presented live broadcasts of the first men to walk on the moon.

Television also broadcasts in-depth programmes that help explain a story or subject. Such programmes, which run from a half-hour to three hours or more, include *documentaries* and *interview programmes*. Most documentaries are filmed or taped. They may examine such subjects as crime, foreign policy, or race relations. Interview programmes, most of which are broadcast live, may consist of a panel of journalists who ask questions of a major figure in the news. For further information on TV journalism, see *Television*.

### Journalism around the world

**In free societies.** Only about 20 per cent of the world's people live in countries that have a free press. Freedom of the press exists largely in the English-speaking countries, in most European nations, and in Israel and Japan. In these countries, the news media enjoy basically much the same freedoms and duties.

In general, newspapers and magazines in free societies are privately owned. But in almost all democracies, the government owns at least one radio and television network. In most cases, however, these networks have as much independence in presenting the news as do the print media. Privately owned radio and TV networks also operate in many free nations.

**In government-controlled societies,** the news media have only as much freedom as the national leaders allow. The press exists to support the government and may publish or broadcast only what the government wants the people to know. The media in these societies may be privately owned or state owned.

In Communist nations, the news media have traditionally been owned and operated by the state and have served mainly to convince the public of the virtues and achievements of Communism. But in the late 1980's, the Soviet Union and most of the other Communist countries of Eastern Europe began to allow the press to operate with more freedom. By the early 1990's, the Communist governments had fallen in those countries, leading to even greater freedom of the press in many cases.

The governments of many countries in Africa, Asia, and Latin America have strict controls on the press. Journalists who criticize the government may be fined or imprisoned, and their news organizations may be closed. Censorship boards make sure that the news media follow government guidelines and support official policy. The boards may also require the press to publicize official notices issued by the government.

Government controlled societies also restrict reporting by journalists from other countries. Foreign correspondents may be forbidden to interview certain government officials or to visit particular parts of the nation.

The government may also censor their reports, and it may even expel journalists from the country.

### History

**The first newspapers** were probably handwritten newsheets that governments posted in public places. The earliest known newsheet was probably the *Acta Diurna* (*Daily Events*), which began in Rome in 59 B.C. It reported the proceedings of the Roman Senate and such news as births and deaths. The first printed newspaper was a Chinese circular called *Dibao* (also spelled *Ti-pao*). It was printed from carved wooden blocks during the A.D. 700's.

The first regularly published printed newspaper in Europe was *Avisa Relation oder Zeitung* of Strasbourg, Germany (now in France). It started in 1609. A weekly newsheet established in 1622 was the first newspaper regularly printed in England.

Early newspaper publishers had to obtain a government licence for anything they wanted to print. In 1644, the English poet and political writer John Milton criticized such licensing in his pamphlet *Areopagitica*. This work was one of the earliest arguments for freedom of the press. England lifted its licensing system in 1695, and several other countries ended theirs in the 1700's. But certain restrictions on the press remained. For example, many countries tried to limit the number of people who could afford to publish newspapers by making them pay a heavy tax on each page they printed. As a result, publishers made their pages as large as possible to print more material for the same tax. By the 1800's, however, these taxes had been ended and the press in many countries had considerable freedom.

**Television journalism** developed quickly after World War II ended in 1945, and many radio newscasters moved into TV news.

In 1965, the launching of *Early Bird*, the first commercial communications satellite, made possible live broadcasts of news events between Europe and North America. Also in the mid-1960's, news programmes began using colour film. Improvements in broadcast technology continued during the 1970's. One of the most important advances was the development of *minicams*, videotape cameras that weigh as little as 5 kilograms. Early videotape cameras were heavy and clumsy. As a result, news programmes rarely used videotaped stories, even though tape has several advantages over film. Unlike film, videotape does not have to be developed, and so its use can save time. Videotape also produces better quality pictures than does film.

The development of minicams made videotape practical for use on daily news bulletins. A story taped with a minicam can be broadcast minutes after a reporter delivers the tape to the TV station. In addition, minicams are often used with specially equipped mobile vans that can relay a story to the station as it happens.

**Journalism today.** The growth of the news media in size and importance has led to tremendous improvements in the methods of gathering and presenting the news. But the cost of operating a news organization has also increased greatly and so has tended to restrict competition. A limited number of news organizations have the enormous responsibility of helping people understand today's increasingly complex and fast-changing



world. The obligation of the media to keep the public informed through full, fair, and accurate reporting has never been greater.

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**Journeyman.** See **Apprentice**; **Guilds**.

**Joust.** See **Belgium** (picture: A pageant); **Knights and knighthood**.

**Jove.** See **Jupiter**.

**Jowett, Benjamin** (1817-1893), was an outstanding British scholar, teacher, and administrator. He is associated with Balliol College, Oxford, where he became fellow, tutor, Regius professor of Greek, Master, and vice chancellor. He is known for his translation of Plato's *Dialogues* (1871). He also translated Thucydides' *History* (1881) and Aristotle's *Politics* (1885). Jowett was born at Camberwell, in London, and was educated at St. Paul's School and Balliol College.

**Joyce, Eileen** (1912-1991), an Australian pianist of outstanding technical brilliance, became a popular concert artist in many countries. She also earned a reputation as an accomplished performer on the harpsichord. She was born in Tasmania, studied music in Leipzig, and later settled in London.

**Joyce, James** (1882-1941), an Irish novelist, revolutionized the treatment of plot and characterization in fiction. Many critics consider William Shakespeare his only rival as a master of the English language.

Joyce was born in Dublin and wrote all his works about that city, though he lived outside Ireland from 1904 on. He lived and wrote in Paris, Rome, Trieste, and Zurich and returned to Ireland only twice, briefly in 1909 and 1912. Joyce suffered a painful eye disease for most of his adult life and became almost blind.

Joyce's first major work was *Dubliners* (1914), a collection of stories that reflects his concern with life among the Irish lower middle class. *A Portrait of the Artist as a Young Man* (1916) is a largely autobiographical novel.

Joyce appears as the character Stephen Dedalus. Like Joyce, Stephen finds himself in conflict with his family, the Roman Catholic Church, and the nationalistic zeal of the Irish people. And like Joyce, Dedalus leaves Ireland and wishes to become a writer. In tracing Stephen's growth to young manhood, Joyce mixed conventional realist prose with passages using techniques known as *interior monologue* and *stream of consciousness*. These techniques give the reader the illusion of following the character's thoughts.

Joyce lived in poverty and obscurity until 1922, when the publication of *Ulysses* made him one of the most celebrated novelists of the 1900's. *Ulysses* takes its title from parallels Joyce established between the adventures of his main character, Leopold Bloom, and those of Ulysses. Ulysses (Odysseus in Greek) was the hero of the *Odyssey*, a Greek epic poem. Bloom suffers ridicule because he is Jewish and has peculiar sexual tastes and because his wife, Molly, is unfaithful. He survives the pain and sorrow of his life by a remarkable capacity to absorb suffering—and even to enjoy it.

*Finnegans Wake* (1939) is probably Joyce's greatest work. In this novel, Joyce portrayed one family and at the same time all families, everywhere, at all times in history. The hero's initials, HCE, stand for Humphrey Chimpden Earwicker, a Dublin innkeeper. But they also stand for Here Comes Everybody. In the story, Dublin symbolizes all cities. Joyce crammed the book with topical and historical names, events, myths, songs, jokes, and gossip. His goal was to make all people, places, things, and times repeat and resemble each other.

Joyce's technique can be studied from the first sentence of *Finnegans Wake*: "riverrun, past Eve and Adam's, from swerve of shore to bend of bay, brings us by commodius vicus of recirculation back to Howth Castle and Environs." The book's last sentence breaks off in the middle but is completed by the book's first sentence. The device is a grammatical representation of the cyclic theory of history that Joyce borrowed from the Italian philosopher Giambattista Vico. The theory also provides the structure for *Finnegans Wake*.

The above sentence traces the flow of the River Liffey through Dublin, past the Church of Adam and Eve, out into Dublin Bay and the Irish Sea. From there, by evaporation and recirculation, the water returns to the physical starting point of the book, Howth Castle. The reference to Adam and Eve introduces a major theme of the book, the Fall of Man. In Irish-Gaelic, the river is called *Anna Liffey*, meaning *River of Life*. The river becomes interchangeable with Joyce's major female character, Anna Livia Plurabelle. She symbolizes the mother of humanity.

Joyce's other works include two collections of poems, *Chamber Music* (1907) and *Pomes Penyeach* (1927); and a play, *Exiles* (1918).

**Juan, Don.** See **Don Juan**.



James Joyce

**Juan Carlos I** (1938- ) is the king of Spain. He became king in 1975, after the death of Francisco Franco, the dictator of Spain. As king, Juan Carlos played an important role in a movement that changed Spain from a dictatorship to a democracy (see **Spain** [Recent developments]).

Juan Carlos became Spain's first king in 44 years. His grandfather, Alfonso XIII, served as king of Spain from 1902 to 1931, when Spain became a republic. Alfonso died in 1941, and Don Juan—his son and Juan Carlos' father—claimed the Spanish throne. Franco, who had become dictator in 1939, rejected the claim. In 1969, he declared that after his retirement or death, Juan Carlos would become king.

Juan Carlos was born in Rome, Italy, where his parents were living in exile. Franco brought him to Spain in 1947 and supervised his education. Juan Carlos attended Spain's Military Academy, Naval School, Air Academy, and the University of Madrid. In 1962, he married Princess Sophia of Greece.



Juan Carlos I

**Juan Fernández** is the name of a group of three islands that lie about 640 kilometres west of Chile in the Pacific Ocean. These islands are part of Chile. They are Robinson Crusoe, Santa Clara, and Alejandro Selkirk. The island group has an area of 144 square kilometres and a population of less than 1,000. Most of the people fish for a living. The islands' waters are well known for the lobsters caught there.

Over 400 Spanish-speaking people live on Robinson Crusoe, the largest island. It is famous as the island where Alexander Selkirk, a castaway, stayed alone for more than four years (1704-1709). The English writer Daniel Defoe partly based his *Robinson Crusoe* on Selkirk's adventures. Juan Fernández, a Spanish explorer, discovered the islands about 1563.

See also **Robinson Crusoe**; **Selkirk, Alexander**.

**Juárez** (pop. 567,365) is Mexico's largest city on the border with the United States. It lies on the Rio Grande, opposite El Paso, Texas (see **Mexico** [political map]). The city's official name is Ciudad Juárez. Founded as El Paso del Norte in 1662, it was renamed in 1888 after President Benito Juárez (see **Juárez, Benito Pablo**).

The United States and Mexico settled a border dispute there in 1963. The dispute went back to 1864, when the Rio Grande changed course, putting land that originally belonged to Mexico on the U.S. side of the river. The United States returned to Juárez 255 hectares of land, including part of El Paso. Mexico transferred 78 hectares of land near El Paso to the United States.

**Juárez, Benito Pablo** (1806-1872), was one of the greatest Mexican political leaders. He began far-reaching economic and political reforms, and led his country in a war of independence. His integrity and concern for the poor were almost legendary.

Juárez, an Indian, was born and educated in the state of Oaxaca and practised law there from 1834 to 1846. In

1847, he was elected governor and made Oaxaca a model state. Juárez joined the liberal movement, which sought constitutional government, reduction of military and clerical power, and redistribution of the church's huge landholdings. The dictator Santa Anna exiled him in 1853 (see **Santa Anna, Antonio López del**).

In 1855, Juárez returned to Mexico and became minister of justice. He had the famous Juárez Law enacted. This law reduced the power of the army and the clergy. In the "war of reform" between conservatives and liberals (1858-1860), Juárez was provisional president of the liberals. When they won, he was elected president of Mexico in 1861.

Juárez found the government in serious financial difficulty, and stopped payment on European loans for two years. The French used his action as an excuse to invade Mexico and instal Prince Maximilian as emperor. Juárez directed the war for freedom. In 1866, the United States virtually ordered the French out of Mexico. French troops withdrew. Maximilian was executed, and Juárez returned to Mexico City (see **Maximilian**). Juárez again became president in 1867. He separated church and state, established religious toleration, and altered the land system. In 1871, Juárez again ran for the presidency. No candidate received a clear majority at the polls. The Mexican congress decided the issue by electing Juárez.

See also **Mexico** (Reform; The French invasion).

**Judah**, in the Old Testament of the Bible, was the fourth son of Jacob. The story of his life is told in Genesis 29 to 49. Judah kept his brother Joseph from being killed, and suggested instead that Joseph be sold to the Ishmaelites as a slave. Phares, one of Judah's five sons, is said to be an ancestor of the Messiah. See also **Joseph** (son of Jacob).

**Judah**, ancient country. See **Jews** (The divided kingdom; Invasions and conquests); **Judea**.

**Judah Halevi**. See **Halevi, Judah**.

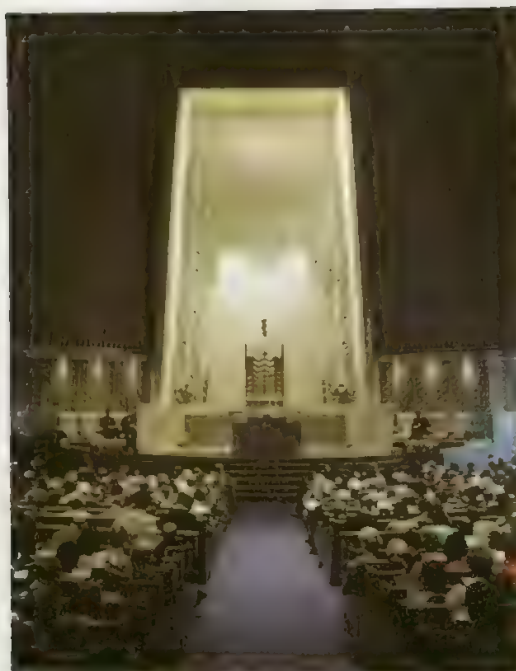
**Judah Maccabee** was the leader of the Jews in their struggle for independence in the 100's B.C. He was the son of a priest named Mattathias from the ancient city of Modin. Judah's name is also spelled *Judas Maccabaeus*. His family is known as the Hasmoneans in the rabbinic texts. Judah's story is told in the Bible, in the Book of I Maccabees in the Apocrypha.

At that time, the Jews were subjects of the Seleucid Empire, one of the states formed out of Alexander the Great's empire. The Seleucid king, Antiochus IV (called Epiphanes), wanted his subjects to adopt Greek culture and customs. Many Jews did this, almost to the point of abandoning their religion. But others resisted.

Antiochus also wanted to get possession of the treasures in the Jews' Temple. In 168 or 167 B.C., angered by Jewish resistance to his policy, he entered Jerusalem, killed many of the people, and defiled the Temple by building an altar to a pagan god there. This is known as the Abomination of Desolation in the Gospels and in the Book of Daniel. The practice of Jewish law was forbidden, and copies of the law were destroyed. Jews who disobeyed were killed.

War broke out when an officer of the king came to Modin and tried to make Mattathias offer sacrifice to the pagan god. Mattathias refused. He fled to the hills, and although he died soon after, his son Judah took his place. Though outnumbered, he repeatedly defeated





**Jewish religious life** includes worship, special ceremonies, and joyous festivals. Jews gather in their synagogue to worship on the Sabbath, *left*. A ceremony called a *bar mitzvah* marks a Jewish boy's acceptance into the adult Jewish community, *upper right*. A Jewish family celebrates the harvest festival of Sukkot by eating in a *sukkah*, a hut built specially for the festival, *lower right*.

the king's armies. About 165 B.C., he reentered Jerusalem and purified and rededicated the Temple. The Jewish feast of Hanukkah commemorates this event (see Hanukkah). Judah won other victories, but in 160 B.C. he died in battle. His brothers, Jonathan and Simon, carried on.

**Judaism** is the religion of the world's approximately 13 million Jews. It is the oldest major religion and the first religion to teach the belief in one God.

Unlike the other major religions, Judaism is the religion of only one people—the Jews. Both Christianity and Islam developed from Judaism. These religions accept the Jewish belief in one God and the moral teachings of the Hebrew Bible. The Hebrew Bible is what Christians call the Old Testament. The basic laws and teachings of Judaism come from the *Torah*, the first five books of the Hebrew Bible.

This article discusses the principal teachings and sacred writings of Judaism. It also tells about the chief branches of Judaism and the structure of organized Judaism. Finally, it describes Jewish worship, holidays, and customs. For information about the history of the Jewish people, see the *World Book* article **Jews**.

### The teachings of Judaism

The most important teaching of Judaism is that there is one God, who wants people to do what is just and merciful. Judaism teaches that a person serves God by studying the scriptures and practising what they teach. These teachings include both ritual practices and ethical laws. Judaism teaches that all people are created in the

image of God and deserve to be treated with dignity and respect. Thus, moral and ethical teachings are as important in Judaism as teachings about God.

**The covenant with God** is a special agreement that Jews believe God made with Abraham, the ancestor of the Jewish people. According to the Bible, God promised to bless Abraham and his descendants if they worshipped and remained faithful to God. God renewed this covenant with Abraham's son Isaac and Isaac's son Jacob. Jacob was also called Israel, and so his descendants became known as the children of Israel or the Israelites. God later gave the Israelites the Ten Commandments and other laws through their leader, Moses. These laws explained how the Israelites should live their lives and build their community.

The Jews are sometimes called the *Chosen People*, meaning that they have special duties and responsibilities commanded by God. For example, the Jews must establish a just society and serve only God. Thus, the covenant assures the Jews of God's love and protection, but it also makes them accountable for their sins and shortcomings.

Unlike Christianity and many other religions throughout the world, Judaism does not actively try to convince others to adopt its beliefs and practices. However, under certain circumstances, it does accept people who choose to convert to Judaism.

**The Messiah.** Traditionally, Jews believed that God would send a Messiah to save them. The word *Messiah* comes from the Hebrew word *mashiah*, which means *the anointed one*. The Book of Isaiah describes the Mes-



The **Star of David** is the symbol of Judaism and of Israel. It consists of two triangles that interlace and form a six-pointed star. In Hebrew, the symbol is called the *Magen David*, which means the *Shield of David*. The star appears on the flag of Israel.

siah as a just ruler who will unite the Jewish people and lead them in God's way. The Messiah will correct wrongs and defeat the enemies of the people.

Many Jews still expect a Messiah to come. But others speak instead of a *Messianic age*. They believe a period of justice and peace will come through the cooperation of all people and the help of God.

### The sacred writings of Judaism

Judaism has two major collections of sacred writings, the Bible and the Talmud. These works provide the basis for Judaism's beliefs and practices.

**The Bible.** The first five books of the Hebrew Bible make up the Torah, the most important of all Jewish scriptures. The Torah contains the basic laws of Judaism and describes the history of the Jews until the death of Moses in the 1200's B.C. According to Jewish tradition, Moses received and wrote down the word of God in the Torah, which is also called the *Five Books of Moses*. Today, however, many scholars believe that different parts of the Torah were passed down in several collections, which were later edited into the five books we have today. In addition to the Torah, the Hebrew Bible contains books of history and moral teachings called the *Prophets* and 11 other books called the *Writings*. See *Bible* (The Old Testament).

**The Talmud** is a collection of legal, ritual, and ethical writings, as well as Jewish history and folklore. It serves primarily as a guide to the civil and religious laws of Judaism. Orthodox Jews believe the laws in the Talmud were an "oral Torah," which God gave Moses as an explanation of the written Torah. About A.D. 200, scholars wrote down these oral laws in a work called the *Mishnah*. Later scholars interpreted the *Mishnah*. Their comments were recorded in the *Gemara*, which was written between 200 and 500. The *Mishnah* and *Gemara* together make up the Talmud. See *Talmud*.

### The branches of Judaism

Judaism has three main branches: (1) Orthodox Judaism, (2) Reform Judaism, and (3) Conservative Judaism. Each branch represents a wide range of beliefs and practices.

**Orthodox Judaism** continues traditional Jewish beliefs and ways of life. Orthodox Jews believe that God revealed the laws of the Torah and the Talmud directly to Moses on Mount Sinai. They strictly observe all traditional Jewish laws, including the dietary rules and the laws for keeping the Sabbath. Orthodox Jews pray three times daily—in the morning, in late afternoon, and after sunset. The men wear hats or skullcaps (*yarmulkas* or *kipot*) at all times as a sign of respect to God.

A kind of Orthodox Judaism known as Modern Orthodoxy attempts to combine the traditional way of life with participation in the general culture. Hasidic Orthodox Jews, in contrast, wear traditional Eastern European Jewish clothing and stress the joy of worshipping God and performing His commandments.

**Reform Judaism** began during the early 1800's. At that time, some Jews started to question the traditional teachings of how the sacred writings of Judaism came into being. For example, they considered the oral law a human creation rather than the revelation of God, and so its authority was weakened for them. These people, who founded Reform Judaism, claimed that Judaism is defined principally by the Bible.

Today, Reform Jews believe that moral and ethical teachings form the most important part of Judaism. Many feel that Judaism's ritual practices have no significance for them. They have discarded many traditional customs and ceremonies. However, Reform Jews are increasingly returning to traditional practices.

**Conservative Judaism** developed during the mid-1800's. Conservative Jews consider the Talmud as much an authority as the Bible. However, they believe that Jewish practice may be changed to fit the times. They believe that in this way, Judaism can remain relevant for each generation. The Conservative movement requires observance of most traditional Jewish laws and customs. The Reconstructionist movement, a smaller group that developed from the Conservative movement, stresses the cultural and community aspects of Judaism.

### The structure of Judaism

Judaism has no one person as its head and no international body with authority over religious practices. Each local congregation chooses its own rabbi and manages its own affairs.

**The synagogue** is the Jewish house of worship and the centre of Jewish education and community activities. A synagogue has a sanctuary where religious services are held. It may also include a school where children study Judaism, the Hebrew language, and Jewish history. Most synagogues have a social hall as well. Reform and Conservative synagogues are often called *temples*.

Most synagogues are constructed so that the worshippers face toward the holy city of Jerusalem during the service. At the front of the sanctuary stands the *ark*, a chest in which the scrolls of the Torah are kept. In front of the ark hangs the *eternal light*, an oil lamp whose constant flame symbolizes God's eternal presence.

**The rabbi** serves as spiritual leader, teacher, and interpreter of Jewish law. Traditionally, rabbis were chiefly teachers of the law. Today, rabbis also deliver sermons during worship services in the synagogue, give advice to people with problems, and perform other functions. A person who wants to become a rabbi must spend years studying Hebrew sacred writings and Jewish history, philosophy, and law. Most rabbinical students also study a wide range of nonreligious subjects.

**The cantor** chants the prayers during worship in the synagogue. The cantor is often a professional who has a trained voice and special knowledge of Hebrew and the traditions of chanting. The cantor may also direct a choir and conduct religious education.

**Worship** in Judaism takes place in the home and the



synagogue. Important parts of home worship include daily prayers, the lighting of the Sabbath candles, and the blessing of the wine and bread at the Sabbath meal. Jews also observe many holiday rituals at home.

Worship practices in the synagogue differ among the branches of Judaism and even within these groups. Orthodox and Conservative synagogues conduct services daily, but most Reform synagogues have services only on the Sabbath and holidays. In all Orthodox and some Conservative synagogues, at least 10 men must be present for a service to take place. This minimum number of participants is called a *minyan*. Any male who is at least 13 years old may lead the service. In most Conservative and Reform congregations, women may lead the service and be part of the minyan.

Synagogue worship consists mainly of readings from the Torah and the chanting of prayers from a prayer book called the *siddur*. A different portion of the Torah is read each week, so the entire Torah is completed in a year. In Orthodox synagogues, men and women sit separately and chant almost all the prayers in Hebrew. In Conservative and Reform congregations, men and women sit together, and much of the service is in the language of the country. Most Sabbath and holiday services include a sermon.

### Holy days and festivals

**The Sabbath** in Judaism is the seventh day of the week, Saturday, which is a holy day of rest. The Sabbath begins at sundown on Friday and ends at nightfall Saturday, at the time when it is calculated that three stars can be seen in the evening sky. On the Sabbath, Jews attend worship services in the synagogue and have special meals at home. Orthodox Jews do not work, travel, or carry money on the Sabbath.

**The High Holidays**, called *Rosh Ha-Shanah* and *Yom Kippur*, are the most sacred days of the Jewish year. Like all Jewish holidays, they occur on different dates each year because they are based on the Hebrew calendar. The High Holidays come during *Tishri*, the first month of the Hebrew calendar, which usually falls in September or October. See *Calendar* (The Hebrew calendar).

*Rosh Ha-Shanah*, the Jewish New Year, begins on the first day of *Tishri* and lasts two days. It celebrates the creation of the world and God's rule over it. According to Jewish tradition, people are judged on *Rosh Ha-Shanah* for their deeds of the past year. The chief symbol is the *shofar*, a ram's horn that is sounded during the holiday worship. See *Rosh Ha-Shanah*.

*Rosh Ha-Shanah* begins the Ten Days of Penitence, which end on *Yom Kippur*, the Day of Atonement. On *Yom Kippur*, Jews fast and express their regret for bad deeds during the past year and their hope to perform good deeds in the coming year. The day is observed mainly through synagogue worship. See *Yom Kippur*.

**The pilgrimage festivals.** In ancient times, Jews were expected to make a pilgrimage to Jerusalem during three major festivals—*Passover*, *Shavuot*, and *Sukkot*. Each festival is associated with the Jews' escape from Egypt and their journey to Canaan (now Israel).

*Passover*, or *Pesah*, comes in March or April and celebrates the exodus of the Jews from Egypt. Jews observe *Passover* at home at a ceremonial feast called the *Seder* (see *Religion* [picture: Jews celebrate the *Passover*]).

During the week of *Passover*, Jews eat an unleavened bread called *matzah*. *Shavuot*, or Pentecost, comes 50 days after the beginning of *Passover* and commemorates the giving of the Torah to the Jewish people on Mount Sinai. Many Reform congregations celebrate *Shavuot* by holding confirmation ceremonies as well. *Sukkot* is a harvest festival that begins five days after *Yom Kippur*. Jews build small huts for *Sukkot* as a reminder of the huts the Israelites lived in during their wandering in the wilderness. On the last day of this festival, called *Simhat Torah*, Jews celebrate the completion of the yearly reading of the Torah.

**Other holidays** commemorate major events in the history of the Jewish people. *Hanukkah*, or the Feast of Lights, is a celebration of God's deliverance of the Jews in 165 B.C. That year, the Jews won their first struggle for religious freedom by defeating the Syrians, who wanted them to give up Judaism. *Hanukkah* usually comes in December and is celebrated by the lighting of candles in a special *Hanukkah* branched candlestick called a *menorah*. *Purim* is a festive holiday in February or March that commemorates the rescue of the Jews of Persia (now Iran) from a plot to kill them. On *Purim*, Jews read the Book of Esther, which tells the story of this rescue. Judaism also has several fast days. The most important of these, *Tishah be-av* (the Ninth of Av), commemorates the destruction of the Temple in Jerusalem by the Babylonians in 586 B.C. and the Romans in A.D. 70.

### Customs and ceremonies

**Dietary laws.** The Bible, chiefly in the books of *Leviticus* and *Deuteronomy*, commands that Jews follow certain dietary rules. Jews who observe these rules do not eat pork or shellfish, such as shrimp or oysters. They also store meat and milk products separately and do not serve them at the same meal. The dietary laws allow only meat that comes from a healthy animal killed by ritual slaughter called *shehitah*. This method of slaughter is designed to kill animals quickly and with as little pain as possible. The ritual must be performed by a specially trained slaughterer, who says a special blessing before killing the animal.

Food prepared in accordance with Jewish dietary laws is called *kosher*, which means *ritually correct* (see *Kosher*). Orthodox Jews consider these laws divine commandments and observe them strictly. Many other Jews observe the rules as a sign of their faith.

**Special occasions.** When a Jewish boy is 8 days old, he is circumcised as a symbol of the covenant God made with Abraham (see *Circumcision*). At the age of 13, a boy becomes a full member of the Jewish community. This event is celebrated in the synagogue with a ceremony called a *bar mitzvah*. Some Reform and Conservative synagogues have a similar ceremony for girls called a *bat mitzvah* or *bas mitzvah*. The young person reads from the Torah during the ceremony, which is followed by a social celebration.

A traditional Jewish marriage ceremony takes place under a *huppa*, a canopy that symbolizes the union of the bride and groom. If a marriage breaks up, the husband must give the wife a writ of divorce called a *get*.

Jews observe special rituals in connection with death. Burial takes place as soon as possible, in most cases within a day after a death. After the funeral, the family

enters a seven-day period of deep mourning called *Shiva*. The mourners recite the *Kaddish*, a prayer that praises God but does not mention death. On each anniversary of the death, the relatives observe a memorial called a *yahrzeit*, reciting the *Kaddish* and lighting a candle in memory of the dead person.

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For Biblical figures, see the list of *Related articles* at the end of the Bible article. See also:

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Bar mitzvah	High priest	Rabbi	Synagogue
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Cities of refuge	Kabbalah	Sabbath	Ten Commandments
Ethics (Judaism)	Kosher	Sadducees	Tishah be-av
Hanukkah	Messiah	Shavuot	Western Wall
Hasidism	Passover	Simhat Torah	Yom Kippur
Haskalah	Pharisees	Star of David	
	Purim	Sukkot	

**Judas Iscariot** was the apostle who betrayed Jesus Christ. The Gospel of Matthew reports that Judas received 30 pieces of silver as payment for betraying Jesus. The betrayal occurred when Judas identified Jesus with a kiss. In the Bible, the Gospel of John emphasizes that Jesus knew Judas would betray Him. See *Jesus Christ* (The Passion).

Scholars have speculated about what information Judas gave to the authorities when he betrayed Jesus. Most assume that it was information telling where Jesus could be arrested. Judas' motives for the betrayal were, perhaps, greed (Matthew 26: 14-16) or the influence of Satan (Luke 22: 3-6 and John 13: 2, 27).

There are two Biblical versions of Judas' death. The Gospel of Matthew reports that he returned the betrayal money and then hanged himself. The Acts of the Apostles tells that Judas bought a field with the money and then fell in the middle of it and died. Later tradition says that Judas hanged himself on the Judas tree, giving the tree its name. Some traditions attempt to present Judas in a favourable light either by stating that he acted according to God's plan, or that he believed he could make Jesus prove He was the Messiah.

See also *Potter's Field*.

**Judas Maccabaeus**. See *Judah Maccabee*.

**Judas tree** is a small tree native to southern Europe. The Judas tree is particularly beautiful early in the spring when the whole tree is covered with pink, delicate flowers, each about 2.5 centimetres long. The flowers emerge from both the old wood and the new twigs. They come into bloom before the leaves appear. The reddish bark is smooth and the wood is hard and close-grained. The simple leaves are heart shaped. The Judas tree bears many seeds in flat, thin pods. The tree is called the Judas tree because of the belief that Judas Iscariot, the betrayer of Jesus Christ, hanged himself on such a tree.

There are several related species of Judas trees, including the redbud of North America. These trees are often planted as ornamental trees in parks and gardens, and along city streets. They grow best in fertile, sandy soil.

**Scientific classification.** The Judas tree is in the pea family, Fabaceae. The Judas tree is *Cercis silquastrum*. The North American redbud is *C. canadensis*.

**Juddah.** See *Jidda*.

**Jude, Epistle of**, is a short letter that forms the 26th book of the New Testament in the Bible. It is one of eight books called General Epistles because they are letters addressed to Christians in general. The Epistle of Jude is only 25 verses long. It was probably written shortly before or after A.D. 100. Its author speaks against the false teachers who have come to prominence in the church and warns that God's judgment against them is certain.

**Jude, Saint**, was one of the 12 apostles of Jesus Christ. He was one of the apostles listed in the Gospel of Luke as the son of James, or the brother of James in some versions of the Bible. However, the lists in the Gospels of



The Judas tree has spreading branches with reddish-brown bark. Gardeners use Judas trees as decorative shrubs.



Clusters of blossoms cover the Judas tree's branches in the early spring, before the leaves begin to unfold.



Matthew and Mark mention Thaddeus or Libbeus in place of Jude. Biblical scholars believe that Jude, Thaddeus, and Libbeus are all the same person.

Jude is sometimes known as Judas. However, he should not be confused with Judas Iscariot, the betrayer of Jesus, or with Jude (also called Juda or Judas), the brother of Jesus. Some scholars believe that he is the Judas mentioned in the Gospel of John. Many Biblical scholars believe he is not the Jude who wrote the Epistle of Jude, the 26th book of the New Testament.

According to later tradition, Jude preached and died in Persia. He may have worked with the apostle Simon the Zealot. Jude is the patron saint of desperate causes. In the Roman Catholic Church, Jude shares a feast day with Simon the Zealot on October 28. Eastern Orthodox Churches celebrate Jude's feast day on June 19.

**Judea** was the name of a country in southern Palestine in ancient times. Its people were called *Judeans*. The word *Jew* comes from this name. The area was originally named after the tribe of Judah that had settled there. Judea was mostly desert, but its people were able to produce olives, grapes, figs, citrus fruits, and some grain.

King David came from the Judean territory. He united all Israel into one kingdom and made Jerusalem its capital. After King Solomon died, the nation was divided into two kingdoms—Israel in the north, and Judah in the south. Jerusalem remained the capital of Judah. In 587 or 586 B.C., the Babylonians captured Jerusalem, and exiled many Jews. The Persian emperor Cyrus allowed the Jews to return in 538 B.C. Judea gained independence under the Hasmonean dynasty in the 100's B.C., but became a Roman province in 63 B.C. The Jews revolted in A.D. 66, driving out the Romans for a brief time. But in 70, the Romans recaptured Jerusalem and destroyed the Temple, putting an end to Jewish rule in 73. A second Jewish revolt from 132 to 135 also failed. Jewish rule over the region did not resume until the founding of the modern state of Israel in 1948.

See also **Jews; Josiah; Palestine** (Roman rule); **Jesus Christ** (map: Jesus' life centred in Judea and Galilee).

**Judge** is an officer of the government who presides over a law court.

A *trial judge* presides in the trial, or lower, court. Where a jury is used, the jury decides questions of fact. The judge decides all questions of law, including the rules that govern what evidence may be admitted. When all the evidence has been heard, and the lawyers for both sides have addressed the jury, the judge *sums up* the case to the jury, telling it what rules of law apply to the case.

Sometimes a jury is not used. One reason may be that the case is one where the law requires the judge to decide on the facts. Or perhaps there are technical questions of science or industry which would be too complicated for a jury to consider. In these cases, the judge decides the questions both of fact and of law.

An *appellate judge* hears appeals that question the accuracy of the trial judge's decisions on points of law. An appellate judge may reverse lower court decisions.

In most countries there are specified retirement ages for judges. Most countries make some provision for judges to be removed from office for failing to perform their duties. But the power is rarely used and generally

entails some sort of public enquiry. In New Zealand and the United Kingdom, judges can only be removed from office by a vote of parliament. The high salary paid to judges, and security of tenure of their office, are designed to put them out of reach of political or criminal pressures, and encourage them to be fair and objective.

See also **Court; Impeachment; Sentence**.

**Judges, Book of**, is a book of the Bible that describes the history of the tribes of Israel from about the 1100's to the 900's B.C. The Book of Judges tells the stories of leaders of ancient Israel called *judges*. These leaders were not necessarily judges in the sense of people who make legal decisions. According to the Bible, the judges were people whom God called to lead the Israelites at critical times. Several judges were military leaders who saved the Israelites from their enemies.

The Book of Judges contains hero stories, folk tales, tribal records, religious judgments, and fragments of historical writings. Many of these sources are as old as the period of the judges. The book consists of three parts. The first part (1: 1-3: 6) describes Israel's conquest of Canaan, an area later known as Palestine, and gives a general description and interpretation of the judges. The second section (3: 7-16: 31) tells the stories of the judges, including such famous Biblical figures as Deborah, Gideon, and Samson. The final section (17: 1-21: 25) tells about the problems of two ancient tribes of Israel—the Danites and the Benjamites.

See also **Deborah; Gideon; Samson; Bible** (The Old Testament).

**Judgment**, in law, is the decision of a court. The judgment may be a conclusion based upon evidence developed in the trial. A *judgment by default* is given by a court when the defendant does not defend his or her case. A judgment becomes, at least for the time, the law governing the particular case before the court. But judgments may be set aside or reversed by higher courts. In some circumstances, a judgment of money due becomes a *lien* upon the debtor's real property. See also **Debt; Lien; Statute of limitations**.

**Judgment** involves understanding and acknowledging how two or more ideas may be alike or how they may be different. We judge that ideas *are* something and that they *are not* something else.

**How to make judgments.** Understanding that a circle is round requires judgment. First, we see an object called a "circle." Then we think of the idea of "roundness." We think of the qualities that make a thing a circle and of the qualities that make a thing round. Philosophers call this process *abstracting*. After abstracting, we have an idea of what a circle is and what roundness is. We can now judge whether these ideas agree or disagree with each other. We realize that the ideas of "roundness" and "circle" are similar. We have made the judgment that "a circle is round."

**Kinds of judgment.** The statement "circles are round" cannot be contradicted. Philosophers call such statements *necessary judgments*. But the truth of the statement "food satisfies hunger" depends on other facts. A person eating the food could be ill and unable to digest it. Philosophers use the term *contingent judgment* for a judgment that can be contradicted.

One kind of judgment is called *belief*. Belief is based on what experienced persons tell us or on events that

are not easily proved. *Opinions* and *doubts* are similar to beliefs. An opinion is a weak form of belief. When we have an opinion about something, we usually wait for more facts before making a firm judgment. When we are in doubt, we delay making a final judgment because the facts or authorities contradict one another.

Making good judgments requires ability, experience, training, and wisdom. Poor judgments result from faulty reasoning, lack of facts, or prejudices.

See also **Logic**.

**Judith** is the heroine of the Book of Judith, one of the Apocryphal books of the Old Testament in the Bible. The book was probably composed between 107 B.C. and 78 B.C. The Assyrian general Holofernes attacked the Jews and laid siege to the town of Bethulia. The Jews were in despair, but Judith saved them. She went to Holofernes, and her beauty won his favour. On their third night together, she cut off his head while he was asleep. As a result, his forces fled.

**Judo** is a sport in which a person uses balance, leverage, and timing to pin or throw an opponent. Judo developed from an ancient Japanese method of unarmed combat called *jujutsu*, also spelled *jujitsu*.

Judo ranks as a major sport in Europe, Japan, and the United States. The sport is taught at colleges, schools, and clubs.

The Japanese word *judo* means *the gentle way*. Many judo techniques depend on a contestant's yielding to an opponent's attack until the right moment to strike back. For example, a contestant does not resist if shoved by an opponent. The shover leans forward and goes off balance at least a little and so can easily be thrown down. With such "gentle" methods, a skilled person can often defeat a heavier, stronger opponent.

**Learning judo.** People learn judo for exercise, relaxation, and self-protection. Children as young as 6 can learn the sport. Practice and good instruction are more

important in judo than a person's age, size, strength, or weight.

Judo training takes place in a gymnasium called a *dojo*. Mats cover the floor. Judo contestants wear a pyjama-like costume called a *judogi*, which consists of a white cotton jacket and trousers and a coloured belt. They compete in bare feet.

Many beginner courses consist of 36 hours of instruction during a 12-week period. Judo students, called *judoka*, begin by learning to fall safely. They also do exercises to strengthen the muscles used in judo. After learning to fall in all directions and from all positions without injuring themselves, the judoka practice other techniques. Most beginners learn a foot sweep, hip throw, rear throw, shoulder throw, and some hand techniques. Judoka also learn the Japanese names for these movements and other judo terms. In addition, they practise judo etiquette, including ceremonial bows and proper ways of sitting on the mats.

Belts of various colours signify ranks of judo achievement. Beginners wear white. As they gain experience, students may be awarded yellow, orange, green, blue, or brown belts. Experts wear black.

**Judo techniques** may be divided into three groups: (1) *nagewaza*, techniques of throwing; (2) *katamewaza*, techniques of choking and holding; and (3) *atemiwaza*, techniques of striking.

**Nagewaza** includes dozens of basic throws that are classified by the part of the body used. They include hand throws, hip throws, leg sweeps, and side and back throws.

**Katamewaza** includes on-the-mat methods of choking, holding, and pinning. Judo rules allow only players at least 13 years old to use choking techniques. Special rules govern the use of elbow locks in judo competition.

**Atemiwaza** includes techniques of kicking or striking various parts of the body to cause injury, paralysis, or



**Judo training** teaches techniques for throwing an opponent to the mat. The men in the photo on the left are practising *oku-ri-ashi-harai*, in which the opponent's feet are swept from under him. In *tomoenage* or circle throw, right, the man on the floor swings his opponent over him.



even death. These methods are used only in self-defence, never in contests.

**Judo contests.** There are two kinds of judo competition, *kata* and *randori*. In *kata*, the contestants perform judo techniques in a specific order. They are judged on style and precision. Women normally take part in *kata* competition. In *randori*, or free competition, the contestants use any technique they wish. Contestants are grouped by age, rank, or weight.

A referee and two judges watch most judo matches to make sure contestants follow the rules. To start a match, contestants bow to each other. Then, at the referee's command, they grasp each other's jacket lapel and sleeve in a certain manner. The referee starts and stops the match, which lasts from 3 to 7 minutes. The referee enforces rules and awards points for the correct performance of techniques. A contestant wins the match by scoring one point or two half-points. For example, a contestant can score a point by throwing an opponent or by pinning an opponent for 30 seconds. A contestant can also win by using an elbow lock or choking method to force an opponent to give up. If no one scores a point, the referee and judges decide who has won the contest.

**History.** Judo developed from *jujutsu*, an ancient form of self-defence practised by the Japanese warrior class called *samurai*. Jujutsu included such techniques as choking, kicking, and twisting an opponent's arm. Many of these methods were dangerous as they could cripple or kill.

In 1882, a Japanese educator named Jigoro Kano transformed jujutsu from a method of combat into a sport he called *judo*. He adopted jujutsu's best techniques and eliminated the rough, dangerous ones. Kano organized the techniques into an orderly system and also established strict rules of etiquette. He considered judo a form of mental discipline as well as a sport and method of self-defence. Kano emphasized two slogans: "Maximum Efficiency with Minimum Effort" and "Mutual Welfare and Benefit."

Judo grew in popularity and, in the early 1900's, became a required subject in Japanese schools. Kano also demonstrated the sport in other countries.

After World War II ended in 1945, judo began its greatest period of growth outside Japan. Judo gained world recognition as a major sport in 1964, when it became part of the Olympic Games.

See also **Olympic Games** (table).

**Juggernaut.** See **Jagannath**.

**Juggling** is throwing and catching more than one object in one hand, or three or more objects in two hands. Jugglers most often use balls, hoops, or clubs shaped like bowling pins.

The world's best jugglers can briefly throw and catch as many as 10 balls, 12 hoops, or 7 clubs. Jugglers can keep a pattern going for a longer time, but only with fewer items. To do so, jugglers throw one object into the air as they are about to catch another. They keep their eyes on the top of the arc of each throw to establish the necessary timing. There are several other forms of juggling. One is spinning a ball. Another involves balancing an object, such as a stick or a ball, on a part of the body.

Ancient Egyptian tomb paintings show people jug-



**A skilful juggler** entertains a crowd by juggling several Indian clubs while balancing on a unicycle.

gling. In the Middle Ages, court jesters juggled. American and European vaudeville performers of the early 1900's also used juggling in their acts. Juggling is also taught as a physical education skill to develop hand-eye coordination. The International Jugglers Association was formed in 1947.

**Jugoslavia.** See **Yugoslavia**.

**Jugular vein** is the name of each of four large veins that return blood to the heart from the head and neck. The veins get their name from the Latin word *jugulus*, which means *collarbone*. There are two jugular veins on each side of the neck, known as the *external* and *internal* jugulars. The external jugulars lie close to the surface and carry blood from the outside parts of the head and neck to the heart. The internal jugulars lie deeper and carry blood from the deeper tissues of the neck and from the interior of the skull. The internal jugular veins are much larger than the external, and are the ones commonly referred to. Opening an internal jugular vein usually proves fatal, because of the rapid loss of blood.

**Jujutsu**, or *jujitsu*. See **Judo**.

**Julian** (A.D. 331-363) was the last Roman emperor to oppose Christianity. He became known as *The Apostate* (the traitor). Julian was a nephew of Constantine I, the emperor who legalized Christianity in A.D. 313. Julian was born in Constantinople. He received a Christian education, but secretly rejected Christian beliefs. In 355, his cousin, Emperor Constantius II, made Julian the *caesar* (ruler) and defender of Gaul. There, Julian distinguished himself, and his troops proclaimed him emperor in 361. Civil war almost resulted, but Constantius died that same year.

As emperor, Julian tried to halt the growth of Christianity by strengthening the Roman religion and prohibiting Christians from teaching in the schools. He also tried to end corruption in government and to restore prosperity during his 18-month reign. He died while fighting the Persians in Mesopotamia. Julian's death ended serious opposition to Christianity in the Roman Empire.

**Julian calendar** was devised in 46 B.C. by the order of Julius Caesar. Before that time the Roman religious officials had distorted the calendar so that it differed from the solar year by three months. The Julian calendar divided the year into 12 months alternating from 30 to 31 days, except February which had 29. Every four years February was to have 30 days. To readjust the calendar, three months were added to the year 46 B.C., making it 15 months long. The first "Julian year" then began on Jan. 1, 45 B.C.

Caesar made Quintilis—the month of his birth—a 31-day month. The Roman Senate renamed it *Julius* (now July) in his honour. To honour the emperor Augustus, the Senate later made August 31 days long by taking a day from February. The Julian year of 365½ days was 11 minutes and 14 seconds longer than the solar year. By 1580, the calendar was 10 days off. Two years later, in 1582, Pope Gregory XIII corrected the calendar with the newly developed Gregorian calendar.

See also *Calendar; Gregorian calendar*.

**Julian or Juliana of Norwich** (1342?-after 1413) was a religious *mystic* (person who claims to have knowledge or awareness of things beyond ordinary human experience). She is famous for her book *XVI Revelations of Divine Love*, in which she described 16 religious visions. These visions, which were mainly of Christ's Passion, she claimed to have had in 1373. The book, which shows the influence of Neoplatonist philosophy, was first published in 1670.

Little is known of Julian of Norwich's life. She was probably a Benedictine nun and spent many years living as an *anchorite* (hermit) near St. Julian's Church, Norwich. **Juliana** (1909- ) was the queen of the Netherlands from 1948 to 1980. From early childhood, she was trained to succeed her mother, Queen Wilhelmina. As a young girl, Princess Juliana attended classes daily at the palace with a few other girls of her own age. In her classes, she learned to cook, sew, and skate. Later, Juliana attended the University of Leiden and received an honorary degree.

Juliana was made a member of the Council of State when she came of age on her 18th birthday. In 1937, she married Prince Bernhard of Lippe-Biesterfeld. Because German troops occupied the Netherlands during World War II, Juliana and her daughters lived in Canada from 1940 to 1945. Her third child was born there in 1943.

In September 1948, Queen Wilhelmina abdicated because of ill health, and Juliana became queen, after ruling as regent for several months. She was not crowned, because in the Netherlands the crown belongs to the people. The ceremony is called *inauguration*. She abdicated in 1980 at the age of 71. She said her age made it difficult for her to perform her duties. Her daughter Beatrix succeeded her.



Queen Juliana

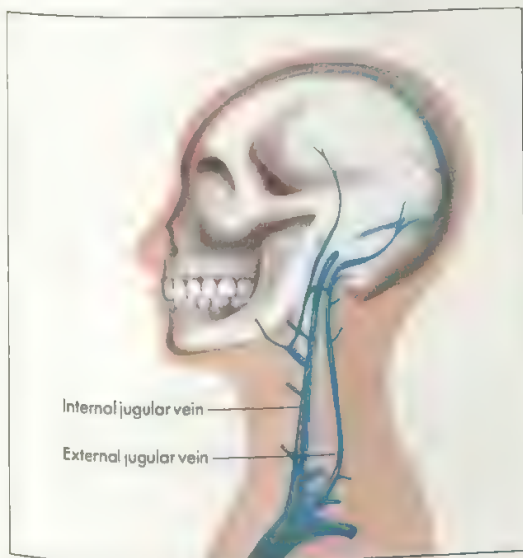
**Julius II** (1443-1513) was the most vigorous and forceful of all the Renaissance popes. He was elected pope in 1503 and immediately became a strong defender of papal temporal power and undertook vast projects to beautify Rome. He resorted to war to achieve his goals.

Julius was born in Albissola, near Savona, Italy. His given and family name was Giuliano della Rovere. His uncle, Pope Sixtus IV, appointed him a cardinal in 1471. As a cardinal he was influential in papal politics and bitterly opposed Alexander VI, the pope from the powerful Borgia family. After his election, Julius was determined to regain the Papal States occupied by Cesare Borgia and other Italian powers, chiefly Venice (see *Papal States*). Julius personally led armies in the conquest of Perugia and Bologna, and in 1509 joined the League of Cambrai against Venice.

Julius' artistic projects were the most enduring aspect of his papacy. He was one of the greatest Renaissance patrons of the arts. He commissioned the architect Donato Bramante to design the new St. Peter's Church. Julius attended the laying of the foundation stone in 1506. He commissioned the artist Michelangelo to carve his tomb and to decorate the Sistine Chapel with frescoes. He also employed the artist Raphael to work in the Vatican apartments, painting such masterpieces as the *School of Athens*.

See also *Michelangelo; Pope (Renaissance and Reformation); Raphael*.

**Julius Caesar.** See *Caesar, Julius; Shakespeare, William (Shakespeare's plays)*.



**The jugular veins**—two on each side of the head and neck—return blood to the heart. The *external jugulars* drain surface regions, and the *internal jugulars* carry blood from deeper tissues.



**July** is the seventh month of the year according to the Gregorian calendar, which is used in almost all the world today.

July was the fifth month in the early calendar of the ancient Romans. The Romans called the month *Quintilis*, which means *fifth*. Later, the Romans moved the beginning of the year to January 1, but did not change the names of the months. The Roman statesman Julius Caesar was born during this month. In 46 B.C., Caesar gave Quintilis 31 days. The Roman Senate renamed the month *Julius* in honour of Julius Caesar.

In most countries in the Northern Hemisphere, July is usually the hottest month of the year. In the Southern

Hemisphere, July is one of the winter months. Except for cold Antarctica and the cold rainy part of South America, the climate during July is mild in most countries in the Southern Hemisphere.

**Activities.** In the northern half of the world, grass and leaves often lose their greenness if there is little rain. But some flowers thrive on the heat and are most brilliant during July. The air is full of the hum of insects, and birds dart everywhere in search of food. July is a month of abundant life.

**Special days.** In the United States, Independence Day is celebrated on July 4. In France, Bastille Day, a holiday commemorating the storming of the Bastille prison

### Important July events

- 1 George Sand, French novelist, born 1804.
  - Proclamation of the state of Victoria, Australia, 1851.
  - The British North America Act went into effect, establishing the Dominion of Canada, 1867.
  - Louis Blériot, French aviator, born 1872.
  - Battle of the Somme began in World War I, 1916.
  - International Geophysical Year began, 1957.
  - The Princess of Wales born 1961.
- 2 Thomas Cranmer, English churchman and martyr, born 1489
  - German Composer Christoph Gluck born 1714.
  - Sir William Bragg, English physicist, born 1862.
  - U.S. President James Garfield shot, 1881.
  - Sherman Antitrust Act passed, 1890.
- 3 Samuel Champlain founded Quebec, Canada, 1608.
  - Architect and interior designer Robert Adam born 1728.
  - Henry Grattan, Irish statesman, born 1746.
- 4 In the American colonies, the Continental Congress adopted the Declaration of Independence, and John Hancock signed it, 1776.
  - Giuseppe Garibaldi, Italian patriot, born 1807.
  - Calvin Coolidge, president of the United States, born 1872.
  - First Pacific cable, running between San Francisco, U.S.A., and Manila, Philippines, opened, 1903.
  - The Philippines achieved complete independence, 1946.
- 5 P. T. Barnum, American circus owner, born 1810.
  - Venezuela declared its independence, 1811.
  - Cecil Rhodes, British statesman and "diamond king", founder of African colonies, born 1853.
  - Britain's National Health Service was set up, 1948.
- 6 Bohemian religious reformer John Hus burned at the stake, 1415.
  - John Paul Jones, American naval hero, born 1747.
  - British troops in the American Revolution captured Fort Ticonderoga, 1777.
- 7 Gustav Mahler, Bohemian composer, born 1860.
  - Marc Chagall, French artist, born 1887.
  - 7 U.S. opera composer Gian Carlo Menotti born 1911.
  - Japanese and Chinese troops clashed, beginning one of the conflicts that led up to World War II, 1937.
- 8 Joseph Chamberlain, British politician, born 1836.
  - Count von Zeppelin, German inventor, born 1838.
  - Percy Grainger, Australian composer, born 1882.
- 9 Argentina declared its independence from Spain, 1816.
  - Elias Howe, American inventor, born 1819.
- 10 Protestant leader John Calvin born 1509.
  - J. A. M. Whistler, American painter, born 1834.
  - Sunil Gavaskar, Indian cricketer, born 1949.
- 11 Robert Bruce, king of Scotland, born 1274.
  - John Q. Adams, president of the United States, born 1767.
- 12 Julius Caesar, Roman general, born 100? B.C.
  - Josiah Wedgwood, British porcelain maker, born 1730.
  - Canadian doctor Sir William Osler born 1849.
  - U.S. inventor George Eastman born 1854.
  - Amedeo Modigliani, Italian artist, born 1884.
- 13 Allan Cunningham, British explorer and botanist who discovered Australia's Darling Downs, born 1791.
  - Mary Emma Woolley, American educator, born 1863.
- 14 Jules Cardinal Mazarin, French statesman, born 1602.
  - Citizens stormed the Bastille at the beginning of the French Revolution, 1789.
  - Gerald R. Ford, president of the United States, born 1913.
- 15 Inigo Jones, English architect, born 1573.
  - Rembrandt, Dutch painter and etcher, born 1606.
  - Manitoba became a province of Canada, 1870.
  - Second Battle of the Marne in World War I began, 1918.
- 16 *Hegira* or flight of Muhammad, prophet of Islam, 622.
  - Andrea del Sarto, Italian painter, born 1486.
  - John Kay, British inventor of weaving machinery, born 1704.
  - British painter Sir Joshua Reynolds born 1723.
  - Mary Baker Eddy, founder of the Christian Science movement, born 1821.



July birthstone—  
ruby



July 4—Giuseppe  
Garibaldi born



July 4—U.S.  
Independence Day



July 14—French  
Revolution begins

during the French Revolution, occurs on July 14. Several other countries celebrate national independence in July. Canada celebrates July 1 as Canada Day. Independence day in Venezuela is celebrated on July 5; in Argentina, July 9; in Belgium, July 21; and in Peru, July 28.

**Symbols.** The special flower for July is the water lily. The ruby is the gem for July.

### Quotations

Then came hot July, boiling like to fire,  
That all his garments he had cast away.

*Edmund Spenser*

The summer looks out from her brazen tower,  
Through the flashing bars of July.

*Francis Thompson*

If the first of July be rainy weather,  
It will rain, more or less, for four weeks together.

*English Proverb*

Hot July brings cooling showers,  
Apricots and gillyflowers.

*Sara Coleridge*

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Bastille Day  
Calendar

Independence Day  
Ruby

Water Lily

### Important July events

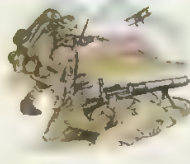
- 16** Roald Amundsen, Norwegian explorer, born 1872.  
—Scientists set off the first atomic bomb at a test site at Alamogordo, New Mexico, U.S.A., 1945.
- 17** Spain officially turned Florida over to the United States, 1821.  
—First issue of *Punch* magazine published in London, 1841.  
—Spanish Civil War began, July 17-18, 1936.
- 18** W. M. Thackeray, British author, born 1811.
- 19** Lady Jane Grey deposed as England's queen after a brief reign, 1553.  
—Samuel Colt, American firearms inventor, born 1814.  
—Edgar Degas, French painter, born 1834.  
—France declared war on Prussia, 1870.
- 20** Italian poet Petrarch born 1304.  
—British Columbia became a Canadian province, 1871.  
—German generals tried to kill Hitler, 1944.  
—U.S. astronaut Neil A. Armstrong became the first person to walk on the moon, 1969
- 21** Leopold became king of Belgium, 1831.  
—Ernest Hemingway, American author and winner of the Nobel Prize, born 1899.  
—Eric Winslow Woodward, first native-born governor of New South Wales, Australia, born 1899.
- 22** Battle of Salamanca, Peninsular War, 1812.  
—Austrian botanist Gregor Mendel born 1822.  
—Alan Moorehead, Australian journalist and author, born 1910.
- 23** Alan Brooke, later Viscount Alanbrooke, British soldier, born 1883.  
—Haile Selassie I, emperor of Ethiopia, born 1892.
- 24** British forces captured Gibraltar, 1704.  
—South American liberator Simón Bolívar born 1783.  
—Alexandre Dumas the Elder, French author of *The Three Musketeers*, born 1802.  
—Robert Graves, British poet and novelist, born 1895.  
—Amelia Earhart, American aviator and first woman to fly the Atlantic, born 1897.
- 24** Arthur Boyd, Australian artist, born 1920.
- 25** George Stephenson first successfully demonstrated a steam locomotive in England, 1814.  
—Arthur Balfour, British statesman, born 1848.  
—Louis Blériot made first aeroplane flight across the English Channel, 1909.  
—Puerto Rico became a commonwealth, 1952.
- 26** The Netherlands declared its independence, 1581.  
—British playwright George Bernard Shaw born 1856.  
—Carl Jung, Swiss psychologist, born 1875.  
—Aldous Huxley, British novelist, born 1894.
- 27** Bank of England incorporated, 1694.  
—French author Alexandre Dumas the Younger born 1824.  
—The first permanent Atlantic cable completed, 1866.  
—Hilaire Belloc, British poet and essayist, born 1870.  
—Truce signed, ending Korean War, 1953.
- 28** Peru declared its independence from Spain, 1821.  
—Gerard Manley Hopkins, British poet, born 1844.  
—Beatrix Potter, British writer for children, born 1866.  
—Austria-Hungary declared war on Serbia, beginning World War I, 1914.  
—Work began on Sydney Harbour Bridge, Australia, 1923.
- 29** Alexis de Tocqueville, French author of *Democracy in America*, born 1805.  
—Benito Mussolini, Italian dictator, born 1883.  
—Dag Hammarskjöld, Norwegian diplomat and secretary-general of the United Nations, born 1905.  
—The *Viscount*, the world's first commercial turboprop airliner, manufactured by British company Vickers, made its first flight, 1950.  
—Prince Charles, heir to the British throne, married Lady Diana Spencer, 1981.
- 30** First representative assembly in America convened in Jamestown, 1619.  
—Henry Ford, American car manufacturer, born 1863.
- 31** Christopher Columbus on his third voyage to the New World, reached Trinidad, 1498.  
—English fleet attacked the Spanish Armada, 1588.



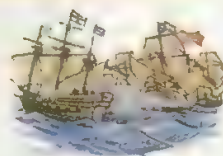
July 16—first  
atomic bomb explosion



July 20—first  
walk on the moon



July 28—start of  
World War I



July 31—English  
attack Spanish Armada





The Column of July is a bronze pillar that stands on the site of the Bastille in Paris. It honours French people killed in the July Revolution of 1830.

**July Revolution** of 1830 took place in Paris when the French people revolted against King Charles X. King Charles had tried to make France an absolute monarchy as it had been before the first French Revolution took place.

In the elections of 1827, the liberals had won a majority in the Chamber of Deputies. King Charles supported their opponents in the 1830 elections, but the liberals won by an even larger majority. The king then issued the July Ordinances. They called for strict censorship of the press, dissolved the newly elected Chamber of Deputies before it had met, set a date for new elections, and reduced the number of voters.

The people revolted. The middle class and the workers, fighting behind barricades in the streets, took over the city in three days. Charles X abdicated the throne and fled to England.

The workers favoured a republican form of government. But the Marquis de Lafayette, the great general and statesman, threw his great influence behind a lim-

ited monarchy under Louis Philippe, the Duke of Orléans. Louis Philippe was a *bourgeois* (middle-class) king rather than an aristocratic king such as Charles X had been. A new French constitution based on the Charter of 1814 was drawn up. At that time, it was the most liberal constitution in Europe.

A wave of revolutions swept through Europe following the July Revolution in France. In one of them, Belgians won their independence from the Dutch.

The Column of July, a bronze pillar on the site of the Bastille in Paris, honours those who died in the revolution.

See also **Charles X** of France; **Louis Philippe**.

**Jumbo.** See **Elephant** (introduction).

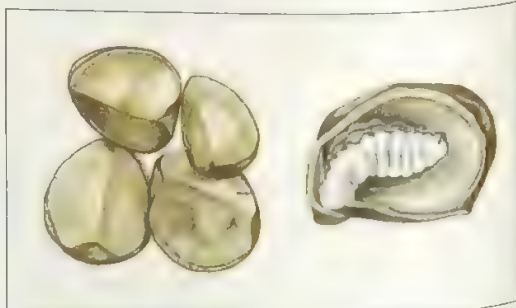
**Jumna River**, in northern India, forms one of the most important branches of the Ganges River. The Jumna rises in the Himalaya and flows southeastward for almost 1,400 kilometres. It empties into the Ganges at the city of Allahabad. Two canals, one leading westward from the Jumna and the other leading eastward, irrigate some 30,000 square kilometres of farmland in the river valley.

**Jumping.** See **Athletics**; **Olympic Games** (table).

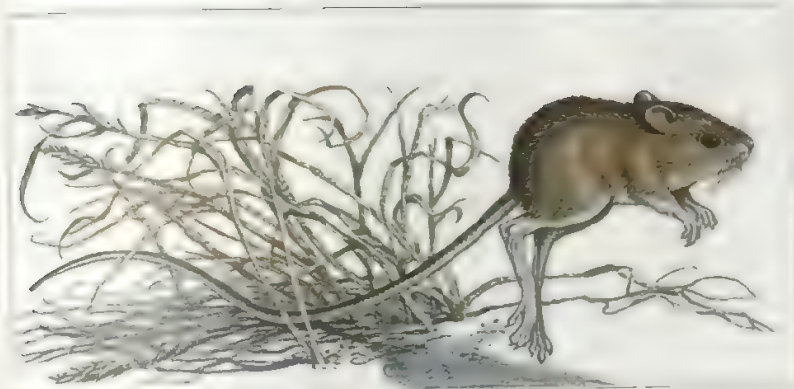
**Jumping bean**, the seed of a Mexican shrub, is famous for its quick, jumping movements. The movements of a jumping bean are actually caused by a caterpillar that lives inside the seed. Moths of the species *Laspeyresia saltitans* deposit their eggs in the shrub's flowers. After the eggs hatch, the caterpillars burrow into the young seeds of the shrub. The seeds later develop a hard outer wall that conceals any indication of how the caterpillar entered.

The caterpillar eats away the inside of the seed, but it leaves the seed wall undamaged. The insect then builds a web along the inner wall. Apparently, the seed jumps when the caterpillar grasps the web and jerks its body. Scientists believe the jumping helps scare away birds and other animals that might try to eat the seeds. Jumping beans remain active for several months. Then the caterpillar makes a circular lid by cutting through the seed wall. The caterpillar later forms a cocoon and begins to change into a moth. When the change is completed, the adult moth pushes through the lid and leaves the seed.

**Scientific classification.** The jumping bean plant belongs to the spurge family, Euphorbiaceae. It is *Sebastiania pavoniana*.



**Jumping beans**, left, are actually the seeds of a Mexican shrub. A caterpillar lives in each jumping bean, right. By grasping the silken wall of the bean with its legs and vigorously snapping its body, the caterpillar makes the bean move suddenly.



A jumping mouse is a rodent that usually moves by hopping. Jumping mice use their long tails for balance when they hop.

**Jumping mouse** is a small animal that usually moves by hopping. Jumping mice have long hind legs and unusually long tails. They use their hind legs to hop and their tails for balance. A jumping mouse is about 10 centimetres long, excluding its 13-centimetre tail. The animal's fur is dark on the back and yellowish-brown on the belly. Most *species* (kinds) have a line along the sides of their bodies where the dark-coloured and the lighter-coloured fur meet.

Jumping mice are rodents that live in Asia, Europe, and North America. Scientists have identified several species of the mice. Many species live in meadows and thickets along the edges of woods. They are found most often in damp places. They are closely related to the dormouse and jerboa (see **Dormouse**; **Jerboa**).



The woodland jumping mouse, above, normally lives in meadows and thickets along the edge of woods in northern parts of North America.

Jumping mice eat insects, leaves and stems, and berries and seeds. The female jumping mouse gives birth to a litter of about five young twice a year. Unlike most other species of mice, jumping mice *hibernate* (sleep through the winter).

**Scientific classification.** Jumping mice belong to the jumping mouse family, Zapodidae.

**Junco** is the name of a few species of sparrowlike birds belonging to the finch family. Juncos live in North and Central America. Juncos have white outer tail feathers and a white belly. They are about 17 centimetres long. Juncos feed on weed seeds and on caterpillars and other insects. They nest beneath overhanging banks, and the female lays three to five eggs.

The slate-coloured junco of North America has many subspecies. Slate-coloured juncos live in a range of habitats, from mountains above the tree line, to coniferous forests, fields, and gardens. The song of the slate-coloured junco is a musical warbling trill. The yellow-eyed junco lives mainly in Mexico. It has bright yellow eyes.

**Scientific classification.** Juncos belong to the finch family, Fringillidae. The slate-coloured junco is *Junco hyemalis*, and the yellow-eyed junco is *J. phaeonotus*.

See also **Finch**.



Juncos are sparrowlike small birds that live throughout much of North America and Central America. They feed on insects and seeds.

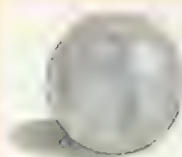


**June** is the sixth month of the year according to the Gregorian calendar, which is used in almost all the world today. June was the fourth month in the early Roman calendar, and it once had 29 days. When the Roman statesman Julius Caesar reformed the calendar, he gave the month 30 days and made it the sixth month of the year. Some authorities believe the Romans named the month after Juno, the patron goddess of marriage. The month of June was dedicated to young men in ancient Rome, and some people believe that the name was taken from *juniores*, the Latin word meaning *young men*.

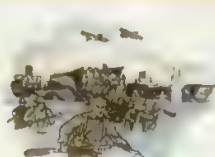
Spring ends and summer begins around June 21 or 22 in the Northern Hemisphere. Trees and shrubs are often at their freshest, and there are more flowers during June than at any other time. June is especially the

### Important June events

- 1 Jacques Marquette, French explorer of America, born 1637.
  - Mormon leader Brigham Young born 1801.
  - John Masefield, British writer, born 1878.
  - Sir Frank Whittle, British inventor of the jet engine, born 1907.
- 2 Start of anti-Catholic "Gordon riots" in London, 1780.
  - Thomas Hardy, British novelist, born 1840.
  - Sir Edward Elgar, British composer, born 1857.
  - Coronation of Queen Elizabeth II of Great Britain, 1953.
- 3 Spanish explorer Hernando de Soto claimed Florida for Spain, 1539.
  - Dutch West India Company chartered, 1621.
  - First ship of the Second Fleet from England entered Sydney Heads, Australia, 1790.
  - King George V of Great Britain born 1865.
- 4 King George III of Great Britain born 1738.
  - First public holiday in Australia, celebrating the king's birthday, 1788.
  - Battle of Midway began in World War II, 1942.
- 5 Adam Smith, Scottish economist and author of *The Wealth of Nations*, born 1723.
  - First public balloon ascent, France, 1783.
  - John Maynard Keynes, British economist, born 1883.
  - U.S. Secretary of State George C. Marshall described the *Marshall Plan*, designed to aid the economic reconstruction of war-torn Europe, 1947.
  - Six-Day War began between Israel and Egypt, Jordan, and Syria, 1967.
  - U.S. Senator Robert F. Kennedy shot by an assassin. Died the following day, 1968.
- 6 Alexander Pushkin, Russian poet, born 1799.
  - YMCA organized in London, 1844.
  - Thomas Mann, German novelist and Nobel Prize winner, born 1875.
  - Allied troops landed on German-held coast of northern France on D-Day in World War II, 1944.
- 7 "Beau" Brummell, English dandy, born 1778.
  - Norway dissolved union with Sweden, 1905.
- 8 William Dampier, English navigator, baptized 1652.
  - Robert Schumann, German composer, born 1810.
  - American architect Frank Lloyd Wright born 1867.
- 9 Peter the Great, czar of Russia, born 1672.
  - George Stephenson, British inventor known as the Founder of Railways, born 1781.
  - Carl Nielsen, Danish composer, born 1865.
  - Cole Porter, American composer, born 1893.
- 10 Prince Philip, Duke of Edinburgh, born 1921.
- 11 Ben Jonson, English poet and playwright, born 1572.
  - John Constable, British painter, born 1776.
  - Richard Strauss, German composer, born 1864.
- 12 Anthony Eden, later Lord Avon, British prime minister, born 1897.
  - Independence first proclaimed in the Philippines, 1898; celebrated as Independence Day.
  - George Bush, president of the United States, born 1924.
  - Anne Frank, known for a diary written while hiding from the Nazis during World War II, born 1929.
- 13 William Butler Yeats, Irish poet and playwright, born 1865.
  - Carlos Chávez, Mexican composer, born 1899.
- 14 Battle of Naseby, English Civil War, 1645.
  - Harriet Beecher Stowe, American author of *Uncle Tom's Cabin*, born 1811.
  - British airmen John Alcock and Arthur Whitten Brown began the first nonstop transatlantic flight, Newfoundland to Ireland, 1919.
  - End of fighting in Falklands war between Britain and Argentina, 1982.
- 15 King John of England granted Magna Carta, 1215.
  - Edward the Black Prince of England born 1330.
  - Edward Grieg, Norwegian composer, born 1843.
  - U.S. inventor Charles Goodyear was granted a patent for rubber vulcanization, 1844.



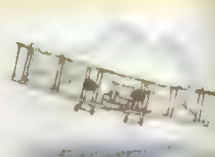
June birthstone—  
pearl



June 6—D-Day  
in World War II



June 9—George  
Stephenson born



June 14—Alcock  
and Brown take off

Trooping of the Colour parade, a colourful military ceremony to mark the Queen's official birthday, takes place in June.

**June symbols.** The special flower for June is the rose. The gems for June are the pearl, alexandrite, and moonstone.

### Quotations

And what is so rare as a day in June?  
Then, if ever, come perfect days;  
Then Heaven tries earth if it be in tune,  
And over it softly her warm ear lays;  
Whether we look, or whether we listen,  
We hear life murmur, or see it glisten.  
*James Russell Lowell*

I knew that you were nearing, June, and I knew that  
you were nearing—  
I saw it in the bursting buds of roses in the clearing;  
The roses in the clearing, June, were blushing pink  
and red,  
For they had heard upon the hills the echo of your tread.  
*Douglas Mallock*

No price is set on the lavish summer;  
June may be had by the poorest comer.  
*James Russell Lowell*

Then let us, one and all, be contented with our lot;  
The June is here this morning, and the sun is shining hot;  
Oh! let us fill our hearts up with the glory of the day,  
And banish every doubt and care and sorrow far away.  
*James Whitcomb Riley*

See also Birthstone; Calendar; Rose.

### Important June events

- 16 Ford Motor Company founded, 1903.
- 17 Father Jacques Marquette and Louis Jolliet began exploring the Mississippi River in America, 1673.  
—John Wesley, English clergyman who was the founder of Methodism, born 1703.  
—Charles Gounod, French composer, born 1818.  
—Russian-born composer Igor Stravinsky born 1882.  
—Burglary of Democratic Party headquarters in Washington, D.C., U.S.A., touched off Watergate political scandal, 1972.
- 18 United States declared war on Great Britain, 1812.  
—The Allies, under the Duke of Wellington and Marshal Gebhard von Blücher, defeated Napoleon at the Battle of Waterloo, 1815.
- 19 Blaise Pascal, French philosopher, mathematician, and scientist, born 1623.  
—Earl Haig, British army commander during World War I, born 1861.
- 20 U.S. inventor Eli Whitney applied for a patent on the cotton gin, 1793.  
—Composer Jacques Offenbach born 1819.  
—U.S. inventor Cyrus McCormick granted patent for reaper, 1834.  
—Victoria became queen of Great Britain, 1837.  
—The United States purchased Alaska from Russia, 1867.  
—Brazilian-born aviation pioneer Alberto Santos-Dumont born 1873.
- 21 Jean-Paul Sartre, French philosopher and writer, born 1905.  
—Allied forces captured Okinawa during World War II, 1945.
- 22 Final abdication of Napoleon Bonaparte as emperor of France, 1815.  
—Julian Huxley, British biologist, born 1887.  
—France surrendered to the Germans during World War II, 1940.  
—Germany invaded the U.S.S.R., 1941.
- 22 U.S. actress Meryl Streep born 1949.
- 23 Battle of Plassey, India, ended in victory for British under Robert Clive, 1757.  
—Carl Milles, Swedish sculptor, born 1875.  
—King Edward VIII of Great Britain born 1894.
- 24 Scots defeated English at Battle of Bannockburn, 1314.
- 25 Sioux Indians massacred Lieutenant Colonel George Custer and his troops at the Little Bighorn, Montana, U.S.A., 1876.  
—Earl Mountbatten of Burma, last viceroy of India, born 1900.  
—North Korean troops attacked South Korea, beginning the Korean War, 1950.
- 26 Charles Tompson, first Australian-born poet, born 1807.  
—William Thomson, Lord Kelvin, British physicist, born 1824.  
—United Nations Charter signed by delegates from 50 nations at San Francisco, 1945.
- 27 Charles Parnell, Irish patriot, born 1846.  
—John Monash, Australian engineer and soldier, born 1865.  
—Helen Keller, deaf and blind author and lecturer, born 1880.
- 28 King Henry VIII of England born 1491.  
—French writer Jean Jacques Rousseau born 1712.  
—Burke and Wills, explorers, died on return journey after first north-south crossing of Australia, 1861.  
—Archduke Francis Ferdinand of Austria-Hungary and his wife were assassinated in Sarajevo, touching off World War I, 1914.  
—Treaty of Versailles signed, 1919.  
—Peter Paul Rubens, Flemish painter, born 1577.
- 29 British Parliament passed the Townshend Acts, taxing tea and other goods imported into the American colonies, 1767.  
—George W. Goethals, American engineer who built the Panama Canal, born 1858.  
—Trade unions were legalized in Britain, 1871.
- 30 Stanley Spencer, British artist, born 1891.



June 14—Battle of Naseby



June 18—Battle of Waterloo



June 28—Burke and Wills die



June 28—King Henry VIII born



**June beetle**, also called *June bug* or *May beetle*, is a name for several large brown beetles often seen in temperate areas of the Northern Hemisphere during May and June. They are related to the ancient scarab beetles of Egypt, which were considered sacred. June beetles are active at night. They feed on the leaves of trees, especially oaks and chestnuts. Sometimes they are found in large numbers around dusk.

June beetles eat the young leaves of trees and shrubs. They deposit their eggs in the ground in meadows, gardens, and fields. The young larvae are large white grubs with brown heads. They burrow into the soil in autumn and stay there for two years or more, feeding on roots of maize, grains, grasses, and vegetables. They come out in May or June as adult beetles.



June beetle

**Scientific classification.** June beetles are in the order Coleoptera and the scarab family, Scarabaeidae.

See also **Scarab**.

**Juneau** (pop. 26,751), the capital of Alaska, has a larger area than any other city in the United States. It covers 8,050 square kilometres in southeastern Alaska.

Juneau owes its beginnings to the discovery of gold in the region in 1880. For many years, gold mining was Juneau's chief economic activity. Today, Juneau's economy relies heavily on government operations. Approximately 50 per cent of the city's workers are employed by the local, state, or federal government. Juneau's other major industries are tourism and fishing.

**Jung, Carl Gustav** (1875-1961), was a Swiss psychiatrist and psychologist who developed the field of analytical psychology. His teachings extended beyond psychology and influenced other fields, including anthropology, philosophy, and theology. Jung challenged many of the theories proposed by the famous Austrian psychiatrist Sigmund Freud, who had developed the method of therapy called *psychoanalysis*. However, both stressed the effects of the conscious and unconscious parts of the mind on human behaviour.

**His life.** Jung, the son of a church minister, was born in Basel. As a boy, he developed a lifelong interest in superstition, mythology, and the occult. In 1895, Jung entered the University of Basel to study archaeology. However, his interests changed, and he qualified as a doctor at the University of Zurich in 1902. He began to practise psychiatry in Basel.

Early in his career, Jung used Freud's psychoanalytical theories. The two met in 1907. They became close, and Jung partici-

pated in the psychoanalytical movement. Later, Jung began to believe Freud placed too much importance on sexual instincts in human behaviour. Jung's de-emphasis of sexuality led to a break with Freud, and their friendship ended in 1913. Jung became a professor of medical psychology at the University of Basel in 1943.

**His theories.** Jung used the terms *introvert* and *extrovert* to classify people. Introverts depend mainly on themselves to satisfy their needs. Extroverts seek the company of other individuals for personal fulfilment. Jung taught that therapists should help patients balance the two personality types in themselves.

Jung thought that many factors besides sex stimulate human behaviour. He believed the personalities of parents are major influences on a child. Unlike Freud, Jung taught that sexuality does not become important until just before young people reach puberty.

Jung, like Freud, believed that the unconscious part of the mind contains personal drives and experiences of which an individual is not aware. But Jung also thought that the members of every race share a deeper level of unconsciousness, which he called the *collective unconscious*. According to Jung, the collective unconscious includes thought patterns called *archetypes*, which have developed through the centuries. Jung thought archetypes enable people to react to situations in ways similar to their ancestors. For this reason, Jung believed that the collective unconscious contains wisdom that guides all humanity. He thought therapy should bring people in contact with the collective unconscious.

Jung's studies of mythology convinced him that archetypes of gods and supernatural powers are deeply rooted in the collective unconscious. He believed religion plays a major role in human life by enabling people to express an unconscious need for religious experience.

See also **Electra**; **Extrovert**; **Freud, Sigmund**; **Introvert**; **Mythology** (Mythology and the individual); **Psychoanalysis**.

**Jungfrau**, a famous mountain, rises 4,158 metres above sea level in the Bernese Alps of Switzerland. The mountain lies about 19 kilometres south of Interlaken, a well-known resort. The name *Jungfrau* means *maiden* in German. For the location of the Jungfrau, see **Switzerland** (map).

The peak was first reached in 1811. The Jungfrau is part of a rocky, circular ridge enclosing several glaciers that unite to form the Aletsch Glacier. An electric railway carries tourists to the Jungfraujoch, a flat area in the ridge 3,454 metres high. The railway can be reached from Lauterbrunnen on the east, or Grindelwald to the west.

See also **Alps**; **Mountain** (picture chart).

**Jungle** is an area of lush, tropical vegetation. People commonly use the word *jungle* to refer to what ecologists call a *tropical rain forest*. A tropical rain forest is a plant and animal community with huge trees, long vines, and such animals as parrots and monkeys. See **Tropical rain forest**.

Some ecologists, however, consider jungles to be one stage in a rain forest's development. They regard jungles as thick tangles of plants growing where sunlight reaches the floor of the rain forest. Such jungles grow in the rain forest along riverbanks and in clear-



C. G. Jung

ings, where no trees block the sunlight. Farmers and timber companies often cut down sections of tropical rain forests, but the cleared areas later may become choked with jungle growth. Jungles may be so thick that people can only move through them by hacking paths with long knives called *machetes*.

**Jungle fowl** is the name of a group of birds that live in southern Asia and the East Indies. They are the ancestors of present-day domestic chickens. Jungle fowl are common in India. They run with great speed, fly rather high, and roost in trees. The hen's cackle sounds much like that of our domesticated fowls, but the cock crows like a bantam rooster.

The wild red jungle fowl lives mostly in mountain forests near small villages. It lives in bamboo thickets but often mingles with domesticated birds. Unlike domestic fowl, the male takes only one hen for its mate. Males are orange-red and shiny green in colour. The females are a spotted brown and often are hard to see. They hatch eggs in a simple hole or hollow in the ground in the forest.

**Scientific classification.** Jungle fowls belong to the family Phasianidae, genus *Gallus*. The red jungle fowl is *G. gallus*.

See also **Chicken** (History).

**Juniper** is the common name of a group of evergreen shrubs and small trees of the cypress family. About 60 species (kinds) of junipers grow in many parts of the world. Juniper trees are sometimes called *cedars* or *red cedars*. But they are not the same as true cedars, which belong to the pine family.

Junipers have distinctive berrylike cones, or fruits. These fragrant fruits vary in colour from blue to red. Usually, the male and female flowers grow on different trees. Only those trees that have female flowers will bear fruit. The leaves of a juniper tree may be needlelike and prickly, or they may be scalelike and lie tightly against the twigs.

The *common juniper* usually grows as a low, mat-forming shrub. It ranks as one of the most widely distributed woody plants in the world. It grows throughout the Northern Hemisphere in countries with a cold climate. Many cultivated forms of this juniper are planted as ornamental shrubs. The fruit of the common juniper contains an oil that is used in medicines and to flavour alcoholic drinks, such as gin. Oils from the leaves and



The male jungle fowl is brightly coloured. Red flesh forms a comb on top of the head and hangs as wattles from the throat. Jungle fowl are ancestors of the domestic chicken.

wood of some species of juniper are used in perfumes and medicines.

The *eastern red cedar* is commercially important in the United States. Its fragrant reddish wood is used to line wardrobes because the odour acts as a moth repellent. Red cedar is also used in making furniture and pencils. Juniper wood resists decay, and is often used for fence posts.

**Scientific classification.** Junipers belong to the cypress family, Cupressaceae, genus *Juniperus*. The common juniper is *J. communis*, and the eastern red cedar is *J. virginiana*.

See also **Cedar**; **Conifer**.

**Junipero Serra.** See **Serra, Junipero**.

**Junius letters** appeared in a London newspaper, the *Public Advertiser*, between 1769 and 1772. The 69 letters, signed *Junius*, caused a sensation because they attacked King George III and his ministers. Historians believe that Sir Philip Francis, a minor government official and later a member of Parliament, was chiefly responsible for the letters.

**Junk** is a wooden sailing vessel used in China and other countries of the Far East. Its *bow* (front) is broad



The common juniper, left, usually grows low to the ground, forming a dense mat. Its small berrylike fruits, right, produce an oil used in medicines and to flavour gin. The fruits turn from green to blue-black in their second year.





A **junk** is a wooden boat used in the Far East. Junks have from two to five masts. The large sails are made of cotton cloth or matting. Junks are used in commerce and sometimes as homes.

and flat, and its *stern* (rear) is broad and high. Junks are used to transport goods on rivers and seas. Some people live on junks. Most junks have two or three *masts* (poles that hold the sails), but some have as many as five. The junk's sails are made of cotton cloth or matting.

**Junkers.** See *Aeroplane* (World War I; picture: The Junkers J.I.)

**Junkers** were wealthy landowners of Prussia. The first Junkers were descendants of knights who settled in Prussia in the Middle Ages. The Junkers gained a monopoly of civilian and military offices during the reign of Frederick the Great in the 1700's. Prussia, led by the Junkers under the statesman Otto von Bismarck, unified Germany in 1871. After World War I (1914-1918), liberals of the Weimar Republic tried to reduce the powers of the Junkers. Paul von Hindenburg, a Junker elected president in 1925, prevented the reduction. The Junkers helped the Nazis overthrow the republic in 1933. See also **Prussia**.

**Juno** was the sister and wife of Jupiter, king of the gods of Roman mythology. As Jupiter's wife, she was queen of the gods and the most powerful goddess. She played the same role in Roman mythology as the goddess Hera did in Greek mythology.

Roman women especially worshipped Juno. She was the goddess of marriage, and, by the Latin name *Juno Lucina* (Juno Who Brings to Light), she was the goddess of childbirth. The Romans dedicated Juno's principal temple to her under the name *Juno Moneta* (Juno Who Gives Counsel). The Romans originally coined their money near this temple, and the words *money* and *mint* come from *moneta*. Juno, along with Jupiter and Minerva, was one of the three deities enshrined in temples on the Capitoline Hill. The hill was the religious centre of ancient Rome. These three gods together became known as the *Capitoline triad*.

Jupiter and Juno had a stormy marriage. Because Juno was jealous of Jupiter's love affairs with other goddesses and with mortal women, she persecuted his mistresses.

Legends describe Juno as hostile to the Trojans, the legendary ancestors of the Romans. In the *Aeneid*, an

epic poem by the Roman author Virgil, Juno was the enemy of Aeneas, a Trojan hero. After Greek armies destroyed Troy, Aeneas wandered for many years until he established a nation in Italy. The descendants of this nation founded Rome. At the end of the *Aeneid*, Jupiter won Juno's support for Aeneas. He did so by promising that Rome would rule a great empire in which Juno would be especially honoured.

See also **Mythology** (Roman mythology); **Hera**; **Jupiter**.

**Junta** is a small group that takes over a government and rules by decree. Most juntas are composed of high-ranking military officers.

A junta may seize power to restore order in a country or to make reforms. The junta either serves as the government itself or sets up a government that follows its policies. In some juntas, one member has taken power as ruler. Most juntas have conservative or moderate political programmes. Junta rule occurs most often in countries that have unstable governments. The term *junta* was once associated chiefly with Latin-American nations.

One example of a junta taking over a country occurred in Egypt in 1952. A military junta seized control of the Egyptian government. One member became prime minister, but the real power lay with junta members. A struggle for power developed between the prime minister and a member of the junta, Gamal Abdel Nasser. Nasser became prime minister in 1954 and later took complete power.

See also **Coup d'état**.

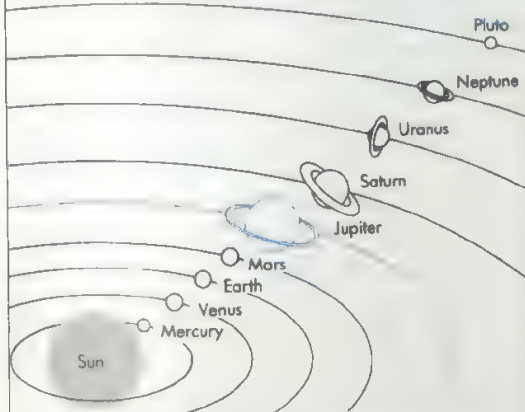
**Jupiter** is the largest planet in the solar system. The diameter of Jupiter at its equator is about 142,984 kilometres, more than 11 times the diameter of the earth. It would take 1,000 earths to fill up the volume of the giant planet. Ancient astronomers named Jupiter after the king of the Roman gods.



Fragments of the comet Shoemaker-Levy 9 collided with Jupiter in July 1994, setting off explosions and creating swirling discoloured "bruises" in the planet's cloudy outer atmosphere. The oval-shaped mark also visible is the Great Red Spot.

### Jupiter at a glance

Jupiter, shown in blue below, is the fifth closest planet to the sun. The ancient symbol for Jupiter, right, represents a lightning bolt.



**Distance from the sun:** *Shortest*—740,600,000 kilometres; *Greatest*—816,000,000 kilometres; *Mean*—778,400,000 kilometres.

**Distance from the earth:** *Shortest*—628,760,000 kilometres; *Greatest*—970,000,000 kilometres.

**Diameter:** 142,984 kilometres.

**Length of year:** About 12 earth-years.

**Rotation period:** 9 hours and 55 minutes.

**Average temperature:**  $-157^{\circ}\text{C}$ .

**Atmosphere:** Hydrogen, helium, methane, ammonia, carbon monoxide, ethane, acetylene, phosphine, water vapour.

**Number of satellites:** 16.

Jupiter is the fifth closest planet to the sun. Its mean distance from the sun is about 780 million kilometres, compared with about 150 million kilometres for the earth. At its closest approach to the earth, Jupiter is about 630 million kilometres away.

**Orbit.** Jupiter travels around the sun in an *elliptical* (oval-shaped) orbit. Its distance from the sun varies from about 816 million kilometres at its farthest point, to about 740 million kilometres at its closest point. Jupiter takes about 4,333 earth-days, or almost 12 earth-years, to orbit the sun, compared with 365 days, or one year, for the earth.

**Rotation.** As it orbits the sun, Jupiter spins on its *axis*, an imaginary line drawn through its centre. Jupiter's axis is almost *perpendicular* (at an angle of  $90^{\circ}$ ) to the planet's path around the sun. The axis tilts at an angle of  $3^{\circ}$  from the perpendicular position.

Jupiter spins faster than any other planet. It rotates once in 9 hours and 55 minutes, compared to 24 hours for the earth. Jupiter's rapid rotation causes it to bulge at its equator and flatten at its poles. The planet's diameter is 9,170 kilometres larger at the equator than between the poles.

**Surface and atmosphere.** Jupiter's surface cannot be seen from the earth because of the layers of dense clouds that surround the planet. These high-level clouds

probably consist of frozen crystals of ammonia and methane. Most astronomers believe that Jupiter is a *fluid planet*. It consists chiefly of gas, but is composed of some liquid as well. The planet may have a small solid core of rocky material.

When Jupiter is viewed through a telescope, a series of *belts* and *zones* can be seen on its clouds. The belts are dark lines that circle the planet parallel to its equator. The zones are light-coloured areas between the belts. The widths and positions of the belts change slowly through the years. The belts and zones may be caused by various gases in the clouds.

A large, oval mark called the Great Red Spot can also be seen on Jupiter's clouds. The spot measures about 40,000 kilometres long—more than three times the diameter of the earth—and about 32,000 kilometres wide. The spot slowly changes its position from year to year. Most astronomers believe the spot is an intense atmospheric disturbance that resembles a hurricane. The spot seems to consist of violently swirling masses of gas.

The atmosphere of Jupiter is composed of about 84 per cent hydrogen and about 15 per cent helium. It also includes small amounts of acetylene, ammonia, ethane, methane, phosphine, and water vapour.

The *atmospheric pressure* on Jupiter has not been accurately measured. This pressure is the force exerted by the weight of the gases in the planet's atmosphere. Astronomers estimate the pressure near the tops of the clouds to be close to the earth's atmospheric pressure of 1.03 kilograms per square centimetre. They believe the pressure rises greatly beneath Jupiter's clouds.

Jupiter's thick atmosphere is composed chiefly of hydrogen gas. But its deep interior may consist of highly compressed liquid hydrogen. The planet's core seems to be made up of iron-bearing rocks.

Scientists do not know whether any form of life exists on Jupiter. Some suggest that certain microscopic organisms might be able to live in certain regions of the planet's atmosphere.

**Temperature.** The temperature at the top of Jupiter's clouds averages about  $-157^{\circ}\text{C}$ . Scientists have not yet determined Jupiter's surface temperature. But they know that its interior is very hot. The temperature in the planet's interior reaches about  $19,000^{\circ}\text{C}$  at 13,000 kilometres from the planet's centre. The planet gives off twice as much energy as it receives from the sun because of its intense internal heat. The central core may be about  $24,000^{\circ}\text{C}$ .

**Mass and density.** Jupiter has a greater mass than any other planet in the solar system (see *Mass*). It is about 318 times as massive as the earth. The force of gravity on Jupiter is much greater than that on the earth. A 45-kilogram object on the earth would weigh about 120 kilograms on Jupiter.

Although Jupiter has a large mass, it has a low density (see *Density*). It is slightly denser than water, and about a quarter as dense as the earth.

**Radio radiation.** Unlike the other planets, Jupiter sends out rather strong radio radiation. The radiation is received on the earth in two forms—as bursts of radio energy and as continuous radio energy. It can be received on the earth by radio telescopes.

Jupiter's radio radiation comes from high-energy particles that form *radiation belts* around the planet. The





Jupiter's four largest satellites change position quickly when viewed through a telescope. In the top photograph, the satellites are spread out. In the bottom photo, taken less than three hours later, Io and Europa appear to be much closer together.

### Satellites of Jupiter

Name	Mean distance from Jupiter in kilometres	Diameter of satellite in kilometres	Year of discovery
Metis	128,000	40	1979
Adrastea	129,000	35 *	1979
Amalthea	181,200	170 *	1892
Thebe	222,000	75 *	1979
Io	422,000	3,632 *	1610
Europa	671,000	3,126 *	1610
Ganymede	1,070,000	5,276 *	1610
Callisto	1,883,000	4,820 *	1610
Leda	11,090,000	15	1974
Himalia	11,460,000	170 *	1904
Lysithea	11,740,000	35	1938
Elara	11,750,000	80 *	1905
Ananke	20,900,000	30	1951
Carme	22,550,000	40	1938
Pasiphae	23,500,000	50	1908
Sinope	24,000,000	35	1914

\*Approximate diameter

particles, which are given off by the sun, are trapped by Jupiter's magnetic field. The enormous bursts of radio radiation often seem to occur when Io, one of Jupiter's largest and closest satellites, reaches a certain point in its orbit around the planet. At this point, electrically charged particles apparently flow along the magnetic field between Io and Jupiter and produce a blast of radio energy.

**Satellites and ring.** Jupiter has 16 known satellites. The four largest moons of Jupiter are called *Galilean satellites* because the Italian astronomer Galileo discovered them in 1610. They have diameters greater than 3,100 kilometres. Two of these moons, Callisto and Ganymede, appear to be made of equal proportions of rocky matter and ice. Their surfaces contain many craters. The two others, Europa and Io, are made of rocky matter with little or no ice. Io has active volcanoes.

Jupiter's 12 smaller satellites have diameters ranging from about 15 to 170 kilometres. They were discovered with the aid of powerful telescopes on the earth and with space probes.

Jupiter also has a thin ring around it. The ring appears

to consist mostly of fine dust particles and is much fainter than the bright rings of Saturn. It is estimated to be about 30 kilometres thick and more than 6,400 kilometres wide.

**Flights to Jupiter** began in the early 1970's. In 1972, the United States launched *Pioneer 10*, which became the first space probe to fly past Jupiter. This unmanned probe flew within 130,000 kilometres of the planet on Dec. 3, 1973. The probe measured Jupiter's radiation belt and reported the amount of hydrogen and helium in the planet's atmosphere. The probe also discovered that Jupiter has an enormous magnetic tail. This tail, which is an extension of Jupiter's *magnetosphere* (zone of strong magnetic forces around the planet), is about 800 million kilometres long.

On Dec. 2, 1974, another unmanned U.S. space probe, *Pioneer-Saturn*, flew within 42,000 kilometres of Jupiter. It provided scientists with close-up photographs of Jupiter's polar regions and data on its Great Red Spot, magnetic field, and temperature. In March 1979, the U.S. *Voyager 1* probe made its closest approach to Jupiter. The unmanned craft detected the thin ring surrounding the planet. In July 1979, the U.S. *Voyager 2* flew past Jupiter. This probe transmitted the first detailed pictures of Jupiter's four largest satellites. The U.S. spacecraft Galileo launched a probe towards Jupiter in July, 1995. The probe will attempt to measure properties below the planet's clouds.

See also **Photography** (picture: Jupiter photographed from spacecraft), **Planet**; **Solar system**.

**Jupiter** was king of the gods and ruler of the universe in Roman mythology. He is also called Jove. Jupiter had the same powers as the Greek god Zeus.

Jupiter was the son of Saturn, the ruler of the universe. Jupiter and the other children of Saturn overthrew him and Jupiter took Saturn's place. Jupiter's brothers were the gods Neptune and Pluto. His sisters were the goddesses Ceres, Juno, and Vesta. Jupiter married Juno, who became queen of the gods.

Jupiter and Juno had a stormy marriage. Jupiter had many mistresses, both goddesses and mortal women. Juno was jealous and persecuted Jupiter's lovers. The children of Jupiter and Juno included the gods Mars and Vulcan. Jupiter's children by other women included the gods Apollo, Bacchus, and Mercury; the goddess Diana; and the hero Hercules. Jupiter also was the father of the nine Muses, who inspired art, poetry, and learning. According to some myths, Jupiter gave birth to the goddess Minerva, who sprang full grown from his forehead.

The religious centre of Rome was Jupiter's temple on the Capitoline Hill. The temple had shrines to Jupiter, Juno, and Minerva. These three *deities* (gods or goddesses) together became known as the *Capitoline triad*. Originally, the Romans apparently worshipped Jupiter as the god of the sky and of such atmospheric phenomena as thunder and lightning. He used a thunderbolt as a weapon and he had the power to send the earth clear weather, rain, or destructive storms. Jupiter's symbols were the royal sceptre and the thunderbolt. One of the planets is named after him.

See also **Mythology** (Roman); **Zeus**; **Juno**.

**Jura** is a mountain range that lies between the Rhine and Rhône rivers. It forms part of the boundary between Switzerland and France. The Juras extend from the



The Jura mountain range forms part of the boundary between Switzerland and France. The thickly forested slopes of the Juras lead down to fertile valleys where farmers grow grapes and other fruit.

northeast to the southwest in parallel ridges. The highest peaks in the Jura mountain range are less than 1,800 metres above sea level. For location, see **Switzerland** (map).

Valuable forests formerly covered the mountainsides. However, much of the forest land has been cleared for pasture. As a result, the dairy industry has become an important source of income. Vineyards cover many of the lower slopes.

**Jurassic Period.** See **Earth** (table: Outline).

**Jurisprudence.** See **Law** (Ancient Roman law).

**Jury** is a group of lay citizens that hears the witnesses in legal disputes and decides the facts. Juries are frequently used in trials of serious crimes. In civil trials, juries are used less frequently.

Juries are commonly used in countries where the legal system is based on that of England. These include Ireland, the United States, and most members of the Commonwealth of Nations. Juries are rarely used in Europe, except in the United Kingdom.

A jury usually consists of 12 people for criminal cases, fewer in civil cases and for inquests. Potential jurors are chosen from voting registers or other local government lists. Certain people are exempt or disqualified. These include people over a specified age, convicted criminals, those employed in the administration of justice, and some professional people in public service. Jurors are chosen at random for each trial. The defendant or the defending lawyers may challenge a certain number of jurors before they are sworn in. Each judicial system has its own rules about challenges. In the United States, where juries are used more frequently than in any other country, all jurors may be questioned to see if they are biased or prejudiced against the defendant.

During the trial the jurors must listen to the evidence

and decide the facts of the case. The judge guides them on the law. The jury is sent out of court if the judge needs to adjudicate on procedure, or the *admissibility* (acceptability) of evidence. At the end of the case the judge *sums up* (reviews) the evidence and explains to the jury that they must find the defendant not guilty unless they are sure he or she is guilty *beyond reasonable doubt*.

After the judge's summing up, the jury goes to a private room to reach a verdict. In most countries, juries must reach a unanimous verdict if possible. But after a specified time the court may accept a majority verdict if that can be reached. If a jury cannot obtain a large enough majority for a verdict, it is known as a *hung jury*. The judge dismisses a hung jury, and a new trial must start with a new jury. Each jury's verdict is given to the court by a *foreman* elected by the jury. When the verdict is accepted the jury's job is done.

Juries for civil cases normally consist of fewer than 12 members. Such juries are used mainly for libel and where fraud is involved. They assess the amount of damages as well as deciding the case. Inquest juries are usually small, and decide on the cause of death.

**History.** Juries probably began to be used in England after the Norman conquest in 1066. By the 1400's they were used in almost all cases to determine guilt. It became a principle of English law that every person had a right to be tried by his *peers* or equals. Until the mid-1900's, however, jurors were chosen only from citizens who were property owners and there was no age limit. Jurors were often not representative of the population as a whole. During the 1960's, most countries introduced laws allowing all citizens of voting age, but below a specified age limit, to qualify for jury service.

See also **Court**; **Grand jury**; **Inquest**; **Judge**; **Trial**.



**Justice.** See Judge.

**Justice of the peace** is a part-time, unpaid, local administrator who undertakes various legal duties in countries such as Australia, India, Ireland, Malaysia, New Zealand, and the United Kingdom. Justices of the peace (JPs) sit as judges in minor criminal and civil cases in some countries.

In Australia, JPs are used mainly to witness official documents. Although in the past they sat as magistrates, that role is now taken mainly by professionally trained, full-time magistrates.

In New Zealand, justices of the peace sit as judges in minor cases in some district courts, preside over preliminary hearings for indictable offences, and hear bail applications. Another of their duties is to sign official documents.

In Ireland and the United Kingdom, JPs sit as judges in magistrates' courts. They normally sit in groups of three and have a legally qualified clerk to advise them as to their powers. They hear criminal cases, licensing applications, and minor matrimonial disputes, and also sit in juvenile courts.

In India, justices of the peace carry out the same functions as in the United Kingdom. In Malaysia, the main function of JPs is usually to witness the signing of official documents.

Justices of the peace were first appointed in England under the Justice of the Peace Act in 1361. They were concerned with 'keeping the peace' in their own locality, and this tradition continues. Although still part-time and unpaid, JPs now receive some training in their judicial functions and have their expenses reimbursed.

**Justin the Martyr, Saint** (100?-165?), was the first prominent defender of the Christian faith against non-Christians. Justin is known as an *apologist* because he defended Christian beliefs and practices against suspicions and false accusations made by non-Christians. His surviving writings use Greek philosophical ideas to explain Christian theological doctrines. His writings also provide descriptions and explanations of Christian life and worship.

In two theological essays called *Apologies*, Justin defended Christians against charges of atheism, sexual immorality, and disobedience to civil authority. He tried to show that Christianity was superior to other religions and that Christians led pious lives.

Justin was born into a Greek family in what is now Nablus, in the West Bank region of Southwest Asia. He tried various Greek and Roman philosophies before converting to Christianity in about 130. In the *Dialogue with Trypho*, Justin gave an account of his conversion. By about 150, Justin was teaching Christian philosophy in Rome. He was beheaded in Rome because he was a Christian. Christianity was an outlawed religion at that time.

**Justinian I** (A.D. 482-565) was the *Byzantine* (East Roman) emperor from A.D. 527 until his death. He collected Roman laws under one code, the *Corpus Juris Civilis* (Body of Civil Law). This code, also known as the *Justinian Code*, is the basis of the legal systems in many nations today (see *Justinian Code*). Justinian was called *The Great*. He recaptured many parts of what had been the West Roman Empire from barbarians. He built fortresses, harbours, monasteries, and the famous church

of Hagia Sophia in what is now Istanbul, Turkey (see *Hagia Sophia*).

Justinian was born in what is now the country of Macedonia. His uncle, Emperor Justin I, made him co-ruler in 527. Justin died a few months later, and Justinian became sole emperor. During Justinian's reign, his wife, Theodora, tried to influence his policies (see *Theodora*). Justinian was an orthodox Christian, and tried to unify his empire under one Christian faith. He persecuted Christian *heretics* (those who opposed church teachings), Jews, and *pagans* (non-Christians). In 529, he closed the schools of philosophy in Athens, Greece, because he felt the schools taught paganism.

In the early 530's, Justinian began a series of wars against the Vandals, Ostrogoths, and Visigoths, who had conquered most of the West Roman Empire in the 400's. By the mid-550's, his armies had taken northern Africa, Italy, and parts of Spain.

See also *Byzantine Empire* (The empire under Justinian); *Silk* (Silk making spreads).

**Justinian Code.** Justinian I, ruler of the eastern Roman Empire from A.D. 527 to 565, commanded 10 of the wisest men in his realm to draw up a collection of the Roman laws. This collection is known as the *Corpus Juris Civilis*, which means *Body of Civil Law*. Also called the *Justinian Code*, this body of law is recognized as one of the greatest Roman contributions to civilization. It was a compilation of early Roman laws and legal principles, illustrated by cases, and combined with an explanation of new laws and future legislation. The code clarified the laws of those times, and has since been a basis for law codes of many countries.

The scholars who compiled the Justinian Code divided it into four parts. The *Institutes* served as a textbook on law for students and lawyers. The *Digest* was a casebook covering many trials and decisions. The *Code* was a collection of statutes and principles. The *Novels* contained laws enacted after the publication of the *Code*.

**Jute** is a long, soft, shiny fibre that can be spun into coarse, strong threads. It is one of the cheapest natural fibres, and is second only to cotton in amount produced and variety of uses. Jute fibres are composed chiefly of the plant materials cellulose, lignin, and pectin. Both the fibre and the plant from which it comes are commonly called *jute*.

Jute is used chiefly to make cloth for wrapping bales of raw cotton, and to make sacks. The fibres are also woven into curtains, chair coverings, carpets, burlap, and hessian. But in many of these uses, synthetic materials are replacing jute. Very fine threads of jute are made into imitation silk. The fibres are used alone or blended with other types of fibres to make twine and rope. Jute butts, the coarse ends of the plants, are used to make inexpensive cloth.

Jute, a rainy season crop, grows best in warm, humid climates. China, India, and Bangladesh are the main producers of jute. To grow jute, farmers scatter the seeds on cultivated soil. When the plants are about 15 centimetres tall, they are thinned out.

About four months after planting, harvesting begins. The plants are usually harvested after they bloom, but before the flowers go to seed. Workers cut the stalks off close to the ground. The stalks are tied into bundles

and *steeped* (soaked) until the outer bark begins to rot. Jute makers call this process *retting*. It softens the tissues and permits the fibres to be separated. The fibres are then stripped from the stalks in long strands and washed in clear, running water. Then they are hung up or spread on thatched roofs to dry. After two or three days of drying, the fibres are taken down and tied into bundles.

Jute is *graded* (rated) in quality according to its colour, strength, and fibre length. The fibres are off-white to brown and about 1 to 4.5 metres long. Jute for export is pressed into bales that weigh about 180 kilograms each, and shipped to manufacturers. Jute intended for local use is pressed into bales weighing from 55 to 150 kilograms.

**Scientific classification.** Jute belongs to the lime family, *Tiliaceae*. It is genus *Cochorus*.

See also **Burlap; Bangladesh** (picture: The processing of jute).

**Jutes** were members of one of three tribes that conquered most of England between about A.D. 450 and the late 500's. The other tribes were the Saxons and the Angles (see **Anglo-Saxons**). These three tribes were Germanic or Teutonic, and they were thought to have come from what is now Denmark and northern Germany. The Jutes settled in parts of southeastern Britain that are now known as Kent, southern Hampshire, and the Isle of Wight.

Much of the information about the Jutes in England comes from *Ecclesiastical History of the English Nation* (731), a book by the English historian Bede (see **Bede**). Archaeological findings have shown that the Jutes had much in common with both the Saxons in Britain and the ancient Franks, a people of what are now Belgium, western Germany, and the Netherlands. Some historians say the Jutes came from the area of Denmark known today as *Jutland*.

**Jutland, Battle of**, was the only major engagement between the fleets of Germany and Great Britain in World War I (1914-1918). On May 31, 1916, the British fleet, under Admiral Sir John Jellicoe, and the German fleet, under Admiral Reinhard Scheer, met off the coast of Denmark in a two-day battle. Although the Germans destroyed more British ships, they lost a greater percentage of their smaller navy. Both sides claimed victory, but the battle left Britain in control of the seas.

See also **Jellicoe, Sir John; World War I** (The war at sea).

**Juvenal** (A.D. 60?-130?) was a Roman poet known for his 16 biting satires. These pieces ridicule the extravagance, corruption, and immorality he saw in Rome. Juvenal excelled in writing short, stinging character sketches. He had a marvellous eye for detail and a keen ear for people's speech. Juvenal thought society should be run by men, like himself, of the old upper class who were of Italian birth. He hated the success of foreigners and the new freedom of women.

Juvenal's 3rd and 10th satires are his best known and have often been imitated. The 3rd satire attacks Rome because it is noisy, uncomfortable, dangerous, and full of criminals and foreigners. His mildest satire, the 10th, shows the dreadful consequences of seeking beauty, power, or material success. It urges the reader to desire only "a sound mind in a sound body"—that is, a healthy

and simple life. Juvenal's work strongly influenced English writers of the 1700's, especially Samuel Johnson (see **Johnson, Samuel** [Early years]).

Juvenal was born in the town of Aquinum in central Italy. His full name in Latin, the language of ancient Rome, was Decimus Junius Juvenalis.

**Juvenile court** is a special court that handles cases involving children who have committed crimes or who need the care and protection of society. In Australia and New Zealand, these courts are known as *children's courts*.

Juvenile or children's courts are presided over by specially trained judges or magistrates. They are part of the judicial system, but are less formal than other courts and hearings are sometimes held in private. Most countries emphasize the importance of providing for the welfare or interests of the child when hearing cases. Generally, there are restrictions on reporting the name, address, and school of someone appearing in a juvenile or children's court.

Each country has its own rules as to the age at which a child can be brought before a court for trial. Commonly the age is about 14. Young offenders under this age are dealt with through school, police, or social services. Most juvenile or children's courts hear cases against young people aged from about 14 up to 17. However, very serious crimes, such as murder, must usually be heard by ordinary criminal courts, whatever the defendant's age.

Orders made by juvenile or children's courts may include supervision or care orders. Normally, social workers report on the child and his or her home conditions before the court makes an order. Children may be put into the custody of a local authority if their own parents are unable or unwilling to take responsibility for them. Generally, young people are not sent to prison, but other forms of custody exist for juveniles convicted of serious violent crimes.

**History.** Before the establishment of juvenile courts, judges tried children for lawbreaking in the same way that they tried adults, and they sentenced many to prison. Juvenile courts were the result of a change in attitudes toward child offenders during the late 1800's. According to these new attitudes, the juvenile courts were to be places to help, not punish, children. Children were not supposed to experience the harsh atmosphere and treatment often found in adult courts. Instead, trained social workers were to give the judge information on the child's background, and the judge would freely discuss problems with the child, usually in a private hearing. The judge then was supposed to reach a decision based on the child's best interests. This decision could result in a warning, a fine, probation, or referral or transfer to another agency. The child could be confined in a training school, learning centre, or some other institution.

See also **Juvenile delinquency**.

**Juvenile delinquency** usually refers to the violation of a law by a juvenile. It includes those acts that would be crimes if committed by adults, such as car theft and burglary, and also those acts that are illegal only for boys or girls, such as buying alcoholic beverages. Many people use the term *juvenile delinquency* to include anything youngsters do that goes against the standards



of society, regardless of whether this action is legal or illegal.

The legal age at which a person is considered to be a juvenile varies from place to place. In most countries it is under 17 years of age. Some countries allow youngsters who are young enough for juvenile-court handling to be tried by regular criminal courts under certain circumstances.

Juvenile delinquency is regarded as a serious social problem in many countries. It has caused increasing public concern, but it is by no means a new problem. Young people formed violent street gangs in American cities during the 1800's, and delinquency rates were reported to be rising during the early 1900's. Delinquency is found in all nations and is particularly widespread in highly industrialized nations that have large cities.

### **What is a juvenile delinquent?**

The legal term *juvenile delinquent* was established so that young lawbreakers could avoid the disgrace of being classified in legal records as criminals. Juvenile delinquency laws were designed to provide treatment, rather than punishment, for juvenile offenders. Young delinquents are usually sent to juvenile courts, where the main aim is to *rehabilitate* (reform) offenders, rather than to punish them. But the term *juvenile delinquency* itself has come to imply disgrace.

A youngster can be labelled a delinquent for breaking any one of a number of laws, ranging from robbery to running away from home. But an action for which a youth may be declared a delinquent in one community may not be against the law in another community. In some communities, the police ignore many children who are accused of minor delinquencies or refer them directly to their parents. But in other communities, the police may refer such children to a juvenile court.

### **Extent of delinquency**

Crime statistics, though they are often incomplete and may be misleading, do give an indication of the extent of juvenile crime. It is true that a large proportion of arrests, and even convictions, for theft are of young people. However, this is not necessarily an indication of the proportion of thefts committed by young people as the vast majority of thefts are never solved and no one knows who committed them.

What has been indicated from statistics in recent years is the increasing number of girls and young women who are taking part in crime. It is also shown from statistics that juveniles who commit crimes tend to do so in groups of two or three, whereas older criminals are more likely to operate alone.

Sociologists have conducted a number of studies to determine how much delinquency is not reported to the police. Most youngsters report taking part in one or more delinquent acts, though a majority of the offences are minor. Experts have concluded that youthful misbehaviour is much more common than is indicated by arrest records and juvenile court statistics.

### **What causes delinquency?**

Many studies have been made in an effort to determine the causes of delinquency. Most of these have focused on family relationships or on neighbourhood or

community conditions. The results of these investigations have shown that it is doubtful that any child becomes a delinquent for any single reason.

**Family relationships**, especially those between parents and individual children, have been the focus of several delinquency studies. An early study comparing delinquent and nondelinquent brothers showed that over 90 per cent of the delinquents had unhappy home lives and felt discontented with their life circumstances. Only 13 per cent of their brothers felt this way. Whatever the nature of the delinquents' unhappiness, delinquency appeared to them to be a solution. It brought attention to youths neglected by their parents, or approval by delinquent friends, or it solved problems of an unhappy home life in other ways. More recent studies have revealed that many delinquents had parents with whom they did not get along or who were inconsistent in their patterns of discipline and punishment.

**Neighbourhood conditions** have been stressed in studies by sociologists. Many of these inquiries concentrate on differing rates of delinquency, rather than on the way individuals become delinquents.

A series of studies have shown that delinquency rates are above average in the poorest sections of cities. Such areas have many broken homes and a high rate of alcoholism. They also have poor schools, high unemployment, few recreational facilities, and high crime rates. Many young people see delinquency as their only escape from boredom, poverty, and other problems.

Social scientists have also studied the influence of other youngsters on those who commit delinquencies. For example, they point out that most youngsters who engage in delinquent behaviour do so with other juveniles and often in organized gangs.

Studies indicate that the causes of delinquency also extend to a whole society. For example, delinquency rates tend to be high among the low-income groups in societies where most people are well-to-do. The pain of being poor and living in slum conditions is felt more strongly in a rich society than in a poor one.

### **Prevention of delinquency**

Many efforts have been made to develop programmes of delinquency prevention. There is little evidence, however, that any of these programmes is truly effective. Some programmes provide counselling services to youths who appear to be on the verge of becoming delinquents. Other programmes draw youngsters into clubs and recreational centres in an effort to keep them away from situations in which delinquency is likely to occur. In recent years, many efforts have centred on improving the educational and work skills of youngsters.

For those juveniles who have already become delinquents, there are programmes designed to prevent them from committing future delinquent acts. Probation services are offered through juvenile courts in an effort to provide guidance for delinquent children. The more progressive institutions for juveniles attempt to provide treatment programmes for offenders—work experience, counselling, education, and group therapy. However, many other institutions provide little more than protective custody for juvenile delinquents.

See also **Juvenile court**.

# Kk

**K** is the 11th letter of the English alphabet. It was also a letter in the alphabet used by the Semites, who once lived in Syria and Palestine. They named the letter *kaph*, their word for *palm of the hand*. They probably adapted an Egyptian *hieroglyphic*, or picture symbol, of an open hand to represent the letter. The ancient Greeks took the letter into their alphabet and called it *kappa*. They gave it the form that it now has. For more information, see **Alphabet**.

**Uses.** *K* or *k* is about the 22nd most frequently used letter in books, newspapers, and other printed material in English. *K* is used as an abbreviation for *knight* or *knights*, as in *KBE* for *Knight Commander of the Order of the British Empire*, *KG* for *Knight of the Order of the Garter*, and *KP* for *Knight of the Order of St. Patrick*. In

chess, *K* stands for *king*, and in chemistry it represents the element *potassium*. *K* is used as an abbreviation for the *Kelvin* scale of absolute temperatures.

In weights and measures, *k* represents *kilo*, a prefix meaning 1,000. In electricity, it stands for *capacity*. In some countries, *k* represents a unit of money—*krona* in Denmark and Norway; *krona* in Sweden; and *kopeck* in Russia and other countries.

**Pronunciation.** In English, a person pronounces *k* in such words as *king* with the tongue drawn back and with its sides touching the velum, or soft palate. The velum is closed, and the vocal cords do not vibrate. The *k* is silent when it appears before *n* at the beginning of a word, as in such words as *knee*, *knock*, and *know*. It is also silent in words such as *foreknowledge* or *penknife*.

## Development of the letter K



The ancient Egyptians, about 3000 B.C., used a symbol that represented a slightly cupped hand.



The Semites simplified this symbol for their alphabet about 1500 B.C. They named the letter *kaph*, which was their word for *palm of the hand*.



The Phoenicians wrote the letter with three prongs about 1000 B.C.



The Greeks, about 600 B.C., gave the letter the form that is used today. They called the letter *kappa*.



The Romans adopted the Greek letter about A.D. 114.

The small letter *k* first appeared during the A.D. 800s as a rounded letter. By about 1500, the letter had developed into its present shape.

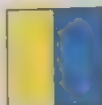


A.D. 800

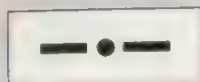


Today

## Special ways of expressing the letter K



International Flag Code



International Morse Code

K



Braille



American Sign Language

British Sign Language



Semaphore Code

## Common forms of the letter K

Kk Kk

**Handwritten letters** vary from person to person. *Manuscript* (printed) letters, left, have simple curves and straight lines. Cursive letters, right, have flowing lines.

Kk Kk

**Roman letters** have small finishing strokes called *serifs* that extend from the main strokes. The type face shown above is Baskerville. The italic form appears on the right.

Kk Kk

**Sans-serif letters** are also called *gothic letters*. They have no serifs. The type face shown above is called Futura. The italic form of Futura appears on the right.

K

**Computer letters** have special shapes. Computers can "read" these letters either optically or by means of the magnetic ink with which the letters may be printed.



**K2**, also called Mount Godwin Austen or Dapsang, is the world's second highest mountain. It is located in the Karakoram, or Mustagh, Range in northern Kashmir (see Himalaya; India [map]). The peak, which reaches 8,611 metres, is snow-covered and usually hidden in clouds. There are glaciers 50 and 65 kilometres long on its flanks. The mountain originally was named after Henry Haversham Godwin Austen (1834-1923), an Englishman who surveyed it in the late 1850's. He called it K2, and it is now known by that name. An Italian expedition reached the top of the mountain for the first time in July 1954. It was led by Ardito Desio. See also **Mountain** (picture chart).

**Kaaba**, also spelled *Caaba*, is the most sacred shrine of Islam. It is a small, cube-shaped building with a flat roof near the centre of the Great Mosque in Mecca. Muslims everywhere turn their faces toward the Kaaba when they pray. The famous Black Stone, enclosed in a silver ring, rests in the eastern corner of the Kaaba. According to Muslim tradition, the Kaaba was originally built by Abraham and Ishmael (also called Ibrahim and Isma'il), and the Black Stone was given to Abraham by the angel Gabriel. The Kaaba is the chief goal of the annual pilgrimage of Muslims. Pilgrims run and walk around it seven times, praying and reciting verses from the Quran. They touch or kiss the stone to end the ceremony. See also **Saudi Arabia** (picture; Islam).

**Kabbalah** is a mystical movement in Judaism. The word is sometimes spelled *Cabala*. Kabbalah is a Hebrew word that means *receiving*.

Kabbalah presents a set of doctrines about the nature of God and creation. According to these doctrines, every part of the religious life is treated as a revelation of God. God is best reached through the individual's looking into his or her own self. God also has a hidden inner life. Kabbalah attempts to explain the relationship between God's inner life and the inner life of the individual and of creation. The Kabbalist tries to attain personal purity and hasten the coming of the Messiah. This goal involves closely following Jewish law to counteract evil. Some Kabbalists use certain divine words as magic to heal the sick and perform miracles. They find hidden meanings in the Bible on which to base these victories.

Kabbalist doctrines refer to sages who lived about A.D. 100. But the movement had its greatest expansion in medieval and early modern times in Europe and the Middle East. A book known as the *Zohar* contains the basic teachings of Kabbalah. The work was probably written in the 1200's by a Spanish Kabbalist named Moses de Leon. There are many Kabbalists in Judaism today, especially in a movement called *Hasidism*.

See also **Hebrew language and literature** (Medieval works).

**Kabir**, who lived in the 1400's, was an Indian religious poet. Kabir could not read or write. But his poetry is powerful, with a rough and ready quality that brings it close to everyday life. His message of religious devotion has continued to inspire Hindus to the present day.

Kabir was born in northern India. But scholars disagree on the details of his life. He was born a Muslim. But his poetry speaks about God in both Hindu and Muslim terms. Some people claim that he tried to blend Hinduism and Islam into a single faith. But, in fact, Kabir was against all forms of organized religion. He empha-

sized the importance of seeking God through direct, religious experience and rejected the rituals of priests, temples, and mosques. He did not believe that gods existed in human or semi-human form. But he used the Hindu name Rama as one among many names for God. According to legend, Kabir was a disciple of the great Hindu religious teacher Ramananda.

**Kabuki**. See **Japan** (Theatre; picture: Kabuki); **Drama** (Asian drama).

**Kabul** (pop. 1,036,407) is the capital and largest city of Afghanistan. It spreads along the banks of the Kabul River in eastern Afghanistan. The city lies 1,795 metres above sea level in the Hindu Kush mountains. For location, see **Afghanistan** (map).

Kabul has an old section and several new sections. Many bazaars and flat-roofed houses crowd the old section. The new sections of the city have wide, tree-lined streets in modern business and residential areas. They include most of Afghanistan's national government buildings and Kabul University.

Kabul serves as an important commercial centre. It exports many goods produced in Afghanistan, including carpets, skins of karakul sheep, and fresh and dried fruits and nuts. Kabul's industries make drugs, farm tools, furniture, machine tools, plastics, prefabricated housing, textiles, and wine.

Ancient coins found in Kabul indicate that the city existed during the period from the 500's to the 300's B.C. Various tribes of Afghanistan and other parts of Asia controlled the Kabul area from that time until the A.D. 1700's. Kabul became the capital of Afghanistan in 1776.

See also **Afghanistan** (picture); **City** (picture).

**Kádár, János** (1912-1989), ruled Hungary from 1956 to 1988 as first secretary of the Communist Party. In 1988, party members removed him from the office of first secretary and appointed him to the newly created, largely ceremonial post of president of the Communist Party.

Kádár gained power in 1956, when Soviet troops crushed a revolt by the Hungarian people. He was premier from 1956 to 1958 and from 1961 to 1965.

Kádár was born János Csermanik, probably in what is now western Croatia (formerly northern Yugoslavia). He became a Communist in the early 1930's, and was arrested several times for antigovernment activities. During World War II (1939-1945), Kádár joined the Hungarian underground and fought the Germans. When Communists gained control of Hungary in 1948, Kádár became minister of the interior and chief of the secret police. Kádár was imprisoned from 1951 to 1953 for sympathizing with the Yugoslav Communists, who had split with the Soviet Union.

See also **Hungary** (History).

**Kaddafi, Muammar Muhammad al-**. See **Qaddafi, Muammar Muhammad al-**.

**Kaesong** (pop. 345,642) is a commercial and industrial centre in southern North Korea. For location, see **Korea** (map). The city's industries produce porcelain, shoes, textiles, and other goods. Kaesong serves as a trading centre for crops grown in the surrounding area, including barley, ginseng, rice, and wheat. Agricultural, medical, and teacher training colleges are located in the city. Kaesong's landmarks include the tombs of several Korean kings; and the remains of city walls, Buddhist temples, and a royal palace.

In A.D. 919, Kaesong—then a small town—became the capital of the kingdom of Koryo, which began ruling the entire Korean Peninsula in 936. The kingdom ended in 1392, and the capital was moved to Seoul a few years later. In July 1951, Kaesong became the original site of the Korean War truce talks. The talks were moved to nearby Panmunjom in October (see Korean War [The truce talks]).

**Kaffir** is any one of a group of grain sorghums native to Africa (see Sorghum). Kaffirs thrive in areas with a low rainfall. These maize-like plants grow 1.2 to 2 metres tall. Their stalks are juicy but not sweet. At the tip of the stalk is a cylinder-shaped seed head. The small, beardless grains may be white, pink, or red. Kaffir can be used for silage, or bundled and fed dry to cattle. The grain has about the same food value as maize, but is hard to digest unless cracked or ground.

**Scientific classification.** The kaffirs belong to the grass family, Gramineae (Poaceae). They are varieties of *Sorghum vulgare*.

**Kafka, Franz** (1883-1924), was a Czech writer who gained worldwide fame only after World War II (1939-1945). Only a few of his short stories were published during his lifetime. Kafka wanted his unpublished manuscripts to be burned after his death, but his friend Max Brod edited and published them nevertheless.

Kafka's highly imaginative works have been associated with such intellectual movements as expressionism, surrealism, and existentialism. But he could not identify himself with any particular creed, class, or ethnic group, and his writings do not belong to any particular literary school. Kafka wrote in German.

Kafka's writings uniquely combine a realistic, sometimes grotesquely exact description of details with an overall atmosphere of fantasies, dreams, and nightmares. He portrays objects and events with precision, but they appear to have no purpose or meaning.

Kafka presents a world in which people are deprived of spiritual security, and tortured by anxiety and loneliness. Kafka's characters repeatedly are frustrated in attempts to gain their goals, such as knowledge, social acceptance, or salvation. They represent typical human conditions and attitudes. Their lives are marked by patterns of hope and despair, attempt and failure. They painfully experience their remoteness from a divine authority. This alienation is rooted in personal guilt and at the same time appears as an inescapable destiny.

Kafka wrote three novels and many short stories. In his novel *The Trial* (1925), a man is arrested, convicted, and executed by a mysterious court. His attempts to learn the nature of his guilt and of the secret court fail, and he dies in ignorance. Another novel, *The Castle* (1926), presents the futile struggle of a newcomer to win acceptance in a village and gain entry to a castle, home of an unknown supreme authority. *Amerika* (1927) is a comic novel about the adventures of an adolescent Eu-

ropean immigrant in America. Kafka's best-known short stories include "The Judgment," "The Metamorphosis," "In the Penal Colony," and "A Hunger Artist."

Kafka was born in Prague of German-speaking Jewish parents. He spent most of his life working as an insurance lawyer. He died of tuberculosis.



Detail of the Salk Institute, 1959 in La Jolla, California, U.S.A.

**Buildings by Louis Kahn** often feature reinforced concrete exteriors. Kahn designed a series of concrete research towers as part of his Salk Institute for Biological Studies, above.



Franz Kafka

**Kahn, Louis Isadore** (1901-1974), was a major American architect and teacher. He became known for his skillful use of concrete and brick. Kahn developed a theory of "served" and "servant" spaces in a building. A structure's "served" spaces are areas where occupants live or work. The "servant" spaces are functional areas, such as stairwells and air ducts. Kahn considered the "servant" areas essential to a building's beauty and creatively incorporated them into his designs.

Kahn's American projects include the Yale University Art Gallery (1953) in Connecticut, the Richards Medical Research Building (1961) at the University of Pennsylvania, and the British Art Centre (completed in 1977, after his death) at Yale. He also designed a master plan for Dhaka, the capital of Bangladesh. Kahn taught at Yale from 1948 to 1957 and at the University of Pennsylvania from 1957 until his death. As a teacher, he influenced many architects of the middle and late 1900's. Kahn was born in Estonia. He moved to the United States in 1905.

For examples of Kahn's work, see **Architecture** (Architecture today); **Bangladesh** (Government).

**Kaiser** was the title used by rulers of the German Empire. *Kaiser* is the German form of the Latin word *caesar* (emperor). German emperors of the Holy Roman Empire sometimes used this title in its German form. Wilhelm I of Prussia took the title of kaiser in 1871, when he became emperor of a united Germany. The last German kaiser was Wilhelm II, who ruled from 1888 to 1918. See also **Wilhelm**; **Czar**; **Caesar**.



**Kaiser, Georg** (1878-1945), was a German expressionist playwright. His dramas are marked by visions of the renewal and regeneration of humanity. *The Burgers of Calais* (1914) shows how society can be saved through individual sacrifice. The play established Kaiser as a leading expressionist playwright.

Kaiser mixed brief, staccatolike language and impassioned, flowery speeches. His characters tend to be types and abstractions rather than individuals. Characters representing specific attitudes appear in his *Gas* trilogy, which attacks capitalism. The trilogy consists of *The Coral* (1917), *Gas I* (1918), and *Gas II* (1920). Kaiser's play *From Morn to Midnight* (1916) made him famous outside Germany. See **Expressionism**.

Kaiser was born in Magdeburg. As a young man, he worked in Argentina, but he became ill and had to return to Germany. When the Nazis seized power in Germany in 1933, they banned his plays. Kaiser then moved to Switzerland.

**Kaiser, Henry John** (1882-1967), an American industrialist, attracted attention during World War II (1939-1945) by the speed with which he built ships. He ignored the usual methods of building from the keel up, and used assembly line methods. His ships were built in separate sections, and the sections were welded together in a few days.

Kaiser was born in Sprout Brook, New York. He left school at 13 to go to work. Later, he went to the Pacific Coast, where he became a roadbuilder. Kaiser and Joseph W. Frazer founded the Kaiser-Frazer Corporation to build cars in 1946. In 1953, this corporation bought Willys-Overland Motors, Inc., and later stopped making passenger cars in the United States. Then Kaiser formed Willys Motors (later Kaiser Jeep Corporation) to produce four-wheel-drive vehicles. Kaiser Jeep Corporation was sold to American Motors Corporation in 1969.

Kaiser also had interests in aluminium, aviation, cement, health care, housing, land development, magnesium, and steel. Today, the major Kaiser companies are Kaiser Aluminium and Chemical Corporation, Kaiser Cement and Gypsum Corporation, and Kaiser Steel Corporation. The Kaiser Foundation Health Plan and Hospitals, Inc., also called Kaiser-Permanente, is a health maintenance organization that provides care for over 3 million people.

**Kakadu National Park** lies between the South Alligator and East Alligator rivers in the Northern Territory, Australia. The park is about 220 kilometres east of Darwin and has an area of 6,000 square kilometres.

The park's wildlife, dominated by waterbirds, is a major attraction. Kakadu is also famous for its Aboriginal cave paintings, which rank among the world's finest examples of ancient cave paintings. The area was proclaimed a national park in 1979. In 1981, it was accepted for inclusion on the World Heritage List (see **World Heritage List**).

**Kakapo** is a rare New Zealand parrot. It now survives only in beech forests in Fiordland and Stewart Island, off the coast of South Island. Some kakapos have also been released on Little Barrier Island, near Auckland, in an effort to save the birds from extinction.

The bird is about 60 centimetres long. Its plumage is green with black and brown bars. It cannot fly like other birds but must leap from a high point and glide. It normally

travels along the ground, clearing tracks through the bush, low scrub, and grass.

Kakapos eat berries, fern roots, and lizards. The birds nest in large natural crevices or in burrows. Female kakapos usually lay from two to four white eggs.

**Scientific classification.** The kakapo belongs to the parrot family, Psittacidae. It is *Strigops habroptilus*.

**Kala-azar** is a disease that affects humans and animals. It is caused by a parasite that belongs to *Leishmania*, a group of one-celled organisms. The disease occurs throughout the warmer parts of Asia, the Mediterranean region, and various parts of Africa and South America. In humans it causes fever, anaemia, and enlargement of the liver, spleen, and lymph nodes. *Kala-azar* in Hindi means *black fever*, which refers to the darkening of the skin that may occur. It is also known as *dumdum fever*, named after a town in India that has suffered from kala-azar epidemics.

Kala-azar is transmitted by various species of sand flies and commonly affects dogs and rodents. It is usually fatal if untreated. Treatment includes use of the drug stibogluconate.

**Kalahari Desert** is a large, dry sandy basin that covers about 500,000 square kilometres in southern Africa. It spreads across much of Botswana, and parts of Namibia and South Africa.

Like a typical desert, the Kalahari has vast areas of waterless ground surface covered by red sands and hundreds of sand dunes. However, some scientists do not consider the Kalahari a true desert. According to some definitions, a true desert receives less than 25 centimetres of rainfall annually. But many parts of the Kalahari sometimes receive more than that amount of rain. Summer temperatures in the Kalahari average 20°C to 30°C. In winter, the Kalahari has a dry, cold climate with frosts at night. The average low winter temperature can drop below 4°C.

The Kalahari is one of Africa's last wildlife paradises. Animals that live in the region include brown hyenas, lions, meerkats, several species of antelope, and many types of birds and reptiles. Vegetation in the Kalahari consists of dry grassland and scrubby acacias. Grasses thrive in the Kalahari during the summer rainy season.



The Kalahari Desert stretches across much of Botswana, and parts of Namibia and South Africa. It covers about 500,000 square kilometres.



**The Kalahari Desert**, in southern Africa, is one of the continent's last wildlife paradises. Antelope, one of the many types of animals that live in the region, graze in the foreground.

African people known as the San (or Bushmen) were the first known human inhabitants of the Kalahari. Their survival skills and adaptation to the harsh Kalahari wilderness have become legendary. Today, only a small number of the San follow their traditional way of life in the Kalahari. See **San**.

Modern civilization is threatening the natural resources of the Kalahari. Mineral companies have discovered large coal, copper, and nickel deposits in the region. In addition, one of the largest diamond mines in the world is located at Orapa in the Makgadikgadi, a depression of the northeastern Kalahari.

**Kale** is a vegetable somewhat like cabbage but with loose, curly leaves instead of a head. These leaves are boiled or steamed and eaten alone or mixed with potatoes. Kale is also called *borecole* and *colewort*. Dwarf kale plants grow about 30 to 40 centimetres high, while the tall-stem type may reach a height of 60 to 75 centimetres. Kale is grown from seed and thrives in cool weather.

In some countries, farmers store the grown plant, with soil attached, in cold frames or hotbeds (see **Cold frame**; **Hotbed**). The leaves stay green and juicy for several months. Kale has additional value because it is a green vegetable that is available during winter. Kale provides one of the richest sources of vitamins A, B-complex, and C. Kale is best grown on a medium-rich, well-drained soil.

**Scientific classification.** Kale belongs to the mustard family, Cruciferae (Brassicaceae). It is *Brassica oleracea*, variety *acephala*.

See also **Cabbage**.

**Kaleidoscope** is a small tube in which you can see beautiful colours and designs. Most kaleidoscopes are from 5 to 8 centimetres in diameter and about 25 centimetres long. Both ends are closed, but one end has a small peephole through which you can look into the kaleidoscope.

The kaleidoscope works on the principle of multiple reflection. Two glass plates inside serve as mirrors. They go down the entire length of the tube and slant toward each other. At the far end of the kaleidoscope are two more plates, one made of clear glass and the other of ground glass. The clear glass is closer to the eyehole. Pieces of coloured beads and glass are placed between the plates. The beads and glass are reflected in the mirrors. The ground glass throws the reflections in many directions, and patterns are formed. When the viewer turns the kaleidoscope, the coloured beads and glass shift, and the patterns change. Designers have used the kaleidoscope to find new patterns for rugs, wallpaper, and fabrics.

A Scotsman, Sir David Brewster, invented the kaleidoscope and patented it in 1817.

See also **Reflection**.

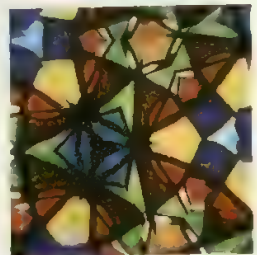
**Kalgoorlie** (pop. 26,079), a town in Western Australia, is the centre of Australia's chief gold and nickel fields. The town lies in an arid region about 600 kilometres east of Perth. General service industries connected with mining employ many local workers, as do the gold mines and a nickel smelter, which are located near the town.

Water is pumped into this arid country from Mundaring Weir, which is 560 kilometres away. Because of its isolation, the town must supply most of its own material needs. It has state and private primary and secondary schools, as well as a technical school and a school of mines. The town of Kalgoorlie also has more than 40 sporting clubs.

Patrick Hannan, Thomas Flanagan, and Dan Shea first discovered gold in the region in 1893. A gold rush followed, and more than 1,400 miners arrived in the area within one week. A settlement, called *Hannans*, soon grew up. It was proclaimed a town and named Kalgoorlie.



**A kaleidoscope**, above, is a tube containing two mirrors and two small plates that hold beads and pieces of coloured glass. The mirrors reflect the beads and glass as colourful symmetrical patterns, right. These patterns change continuously as the tube is turned. A person looks into the tube through a peephole.







**Kalgoorlie** is at the centre of Australia's chief gold and nickel fields. The town grew rapidly after gold was first discovered in 1893 and continued to prosper with the later discovery of nickel deposits nearby. The town is renowned for the historic buildings that line the main street and are of interest to tourists.

lie in 1895. The town developed rapidly after the completion of the Mundaring Weir in 1898.

**Kalidasa** was a great Indian poet and dramatist. He wrote in the ancient Indian language of Sanskrit. Kalidasa is sometimes called *the Shakespeare of India*.

Many of his plays and poems have romantic themes. They are remarkable for their description of nature, the elegant style in which they are written, and the powerful imagination of their author.

Historians have been able to establish few definite facts about Kalidasa's life. Many think that he was one of the group known as *the nine gems*. These were men of genius at the court of the Indian king Vikramaditya. This king was probably Chandragupta II, who reigned from about A.D. 380 to 415.

Kalidasa's best known works are the play *The Recognition of Shakuntala* and the lyric poem "The Cloud Messenger."

**Kalimantan** is the name generally given to the Indonesian part of Borneo, the third-largest island in the world. Borneo is divided between three nations. In the north are two states belonging to Malaysia—Sarawak and Sabah—and the small independent state of Brunei. The remaining three-quarters of the island consists of the four Indonesian provinces of Kalimantan. The four provinces are *Kalimantan Barat* (West Kalimantan), *Kalimantan Selatan* (South Kalimantan), *Kalimantan Tengah* (Central Kalimantan), and *Kalimantan Timur* (East Kalimantan). The density of population is only 15 people per square kilometre over the four provinces.

Kalimantan lies on the equator, which passes through Pontianak. The southeast monsoon blows from May to September, and the northeast monsoon from November to March.

**Land.** The land is mainly low lying. Dense tropical rainforest covers about 90 per cent of the land area. The highest peak entirely in Kalimantan is Bukit Raya (2,278 metres), on the boundary between Kalimantan Barat and

Kalimantan Tengah. Kalimantan's largest rivers include the Sungai Barito (2,344 kilometres long), the Sungai Kapuas (1,143 kilometres), and the Sungai Kahayan (883 kilometres). The Sungai Mahakam is navigable.

**People.** The main population groups live around Pontianak, Banjarmasin, and around the coastal areas from Balikpapan to Samarinda. The Dayaks live in sparsely populated areas near rivers. Most recent arrivals have settled in the coastal areas. Bugis and other immigrants from Sulawesi live mainly in Kalimantan Timur, with the Iban, Kayan, and other indigenous peoples. In the west, there are Malay immigrants from Sumatra and Malaysia. In Kalimantan Tengah, there are Dayaks and Chinese settlers. The people living around Banjarmasin are largely of Malay descent. The main faiths are Islam (75 per cent), Roman Catholicism (8 per cent), and Protestantism (8 per cent). Many of the people living upriver follow local religions. The main languages are dialects of Malay, Dayak, and Chinese.

**Products.** Kalimantan is one of the fastest growing areas of Indonesia. This growth is the result of well-developed transport links with neighbouring provinces. Forests cover some 40 million hectares. As well as timber such as teak and ebony, forest products include *copra* (dried coconut meat), resins, and rattans. Since the 1960s, large areas of Kalimantan have become timber concessions. The four provinces provide more

#### Facts in brief about Kalimantan

**Population:** 8,677,459.

**Area:** 539,460 km<sup>2</sup>.

**Climate:** Average annual temperature—25 °C. Annual rainfall—203 cm.

**Elevation:** Highest—Bukit Raya, 2,278 m.

**Largest cities:** Banjarmasin, Pontianak, Balikpapan.

**Chief products:** Agriculture—coffee, maize, peanuts, pepper, rice. Forestry—coconuts, copra, rattan, resin, timber. Mining—coal, diamonds, gold, natural gas, petroleum, uranium.

than half the timber exported by Indonesia. The rate of felling is now a serious threat to the forests. The main agricultural products are maize, peanuts, and rice. Plantation crops include cloves, coconuts, coffee, pepper, and rubber. Among domestic animals are buffaloes, cattle, goats, and horses. Bears, deer, orangutans, porcupines, snakes, and wild boar live in the forests.

The main mineral products are oil, petroleum, and natural gas from on-shore and off-shore fields. The main fields are in Kalimantan Timur, where there is a major oil refinery at Balikpapan. Balikpapan is an oil town, and the economic centre of the province. Other mineral products are coal, diamonds, gold, and uranium.

**History.** The population has lived mostly along the coast and the river valleys, with no great inland centres. Kalimantan came under the early influence of Indian settlers. The oldest Sanskrit inscriptions in the Indonesian archipelago, seven inscriptions on stone pillars, were found in Kutai in Kalimantan Timur. Historians believe that they date from about A.D. 400. There are signs of further Indian influence in later times, and of strong influences from Java. From about 1500, Islamic merchants settled in the small kingdoms around the coast of Kalimantan, and slowly the rulers became Muslims. One of the earliest Islamic states was Brunei. It was followed by Banjar, Kutei, and others. In the early 1600's, the Dutch began to make trading agreements in the area. They gained the monopoly of the pepper trade in Banjarmasin, and the diamond trade in Sambas. In 1778, the Dutch also made a contract with the state of Pontianak. During the 1800's the remaining rulers entered into

trade treaties with the Dutch. Gradually the Dutch took control of all of what is now Kalimantan. The Japanese occupied Kalimantan and the rest of Indonesia from 1942 to 1945. When Indonesia gained independence in 1945, Kalimantan became a province. It was later divided into four provinces.

See also **Borneo; Brunei; Indonesia; Malaysia; Sabah; Sarawak.**

**Kalinga, Conquest of**, was a turning point in the life and reign of Emperor Asoka, the greatest ruler of ancient India. Asoka was anxious to acquire Kalinga (now Orissa), an area that controlled trade routes to the south. Kalinga was a huge region located between the Godavari and Mahanadi rivers. The conquest took place from 261 to 260 B.C., and resulted in the death of 100,000 people, and the capture of 150,000.

Asoka was struck with grief and remorse at all this killing. He gave up war and the taking of life, and preached tolerance for all religions. He became a Buddhist, and from that time on helped to spread his religion to Burma, Ceylon (now Sri Lanka), and China. Asoka also laid the foundations of a welfare state, for which he planted trees, built temples, and set up hospitals and animal sanctuaries.

See also **Asoka.**

**Kaliningrad** (pop. 380,000) is the westernmost port city of Russia. A natural water route connects it with the Gulf of Gdańsk on the Baltic Sea (see **Russia** (political map)). Kaliningrad serves as an important naval base. Its main industries include shipbuilding, ship repair, machine building, and fishing.

Kaliningrad was founded in 1255 by German knights. It was originally called Königsberg. The city became the cultural and political centre of the German state of East Prussia in the 1600's. Much of the city was destroyed in World War II (1939-1945). In 1945, the city became part of the Russian Republic of the Soviet Union. The Soviets named the city Kaliningrad in 1946. The Soviet Union was dissolved in 1991. Russia and other former republics became independent nations.

**Kalmia.** See **Mountain laurel.**

**Kamakura period**, in Japanese history, lasted from 1185 to 1333. The *samurai* (warrior class) dominated the imperial government from military headquarters in Kamakura, near Yokohama. Art and literature underwent important developments during the period. Artists erected the giant *Daibutsu* (Great Buddha) in Kamakura (see **Buddhism** (picture)). See also **Samurai; Sculpture** (Japan).

**Kamchatka Peninsula** extends southward from eastern Siberia, in Russia, between the Bering Sea and the Sea of Okhotsk. For location, see **Russia** (terrain map). The peninsula covers about 350,000 square kilometres and has about 422,000 people. A range of volcanic mountains runs its length. The peninsula has thick forests. Fishing and hunting are the chief industries. The region provides bear, sable, fox, beaver, otter, and seal fur. Its streams have many salmon. There are several major crab fisheries on its west coast.

About 80 per cent of the people living on the peninsula are Russians. The others belong to Siberian tribes and include Koryaks, Evens, Chukchi, Itelmens, and Aleuts. Petropavlovsk-Kamchatskiy, on the eastern coast, is the capital and chief port.



**Fruit and vegetables** add colour to the market stalls in the large coastal town of Samarinda, in Kalimantan Timur.



**Kamehameha I** (1758?-1819) founded the Kingdom of Hawaii. He rose to power through his ability and strength. After Kaniopu'u, the chief of Hawaii, died in 1782, Kamehameha conquered the island. He later won additional victories that climaxed in 1795 with the bloody Battle of Nuuanu Pali on the island of Oahu. Kamehameha used cannons to drive Oahu's defenders over a cliff near Honolulu. He brought the island of Kauai into the kingdom peacefully in 1810.



Engraving (1816) by Louis Choris  
**Kamehameha I**

Kamehameha greatly increased Hawaii's foreign trade. He kept alive the old customs and religion of his people, but after his death, missionaries spread Christianity throughout the islands. Kamehameha was born in the Kohala district of the island of Hawaii.

See also **Hawaii**.

**Kamikaze** was a type of Japanese pilot who flew suicide missions during World War II (1939-1945). The kamikazes were trained to dive aeroplanes loaded with explosives into certain targets, usually American warships. The suicide planes were also called kamikazes.

Japan was desperate when it launched the kamikaze missions. Its military leaders viewed the kamikazes as the last hope of stopping the powerful Allied advance. Fliers volunteered for kamikaze missions because they considered it a privilege to die for their emperor.

The first kamikaze attacks occurred in October 1944, when the Allies invaded the Japanese-held Philippines. More than a thousand kamikazes took part in the defence of Okinawa in 1945. They sank at least 30 vessels and damaged more than 350 others. But the kamikazes failed to sink any large aircraft carriers—their main targets—and in time proved to be a costly failure. They became more important for the kind of resistance they symbolized than for the damage they caused.

The word *kamikaze* means *divine wind*. It originally referred to a typhoon that destroyed a fleet sent by the Mongol conqueror Kublai Khan to attack Japan in 1281.

**Kampala** (pop. 773,463) is the capital and largest city of Uganda. It lies north of Lake Victoria (see **Uganda** [map]). Kampala is Uganda's chief commercial centre and agricultural market. A railway links the city with Mombasa, Kenya's main port. Kampala is built on and around a series of hills. Makerere University, the Kibuli Mosque, Protestant and Roman Catholic cathedrals, and the palace of the kings of *Buganda* (a former kingdom of Ugandans) stand on these hills. Kampala replaced Entebbe as capital when Uganda became independent in 1962.

**Kampuchea**. See **Cambodia**.

**Kanchenjunga, Mount**. See **Mount Kanchenjunga**.

**Kandahar**. See **Qandahar**.

**Kandinsky, Wassily** (1866-1944), was a Russian artist. He is generally considered to have originated abstract painting, which has no recognizable subject. Kandinsky believed that painting—like music—is chiefly a form of personal expression, rather than a way to tell a story or express an idea.

Kandinsky was born in Moscow and moved to Munich, Germany, in 1896. In 1911, he and the German artist Franz Marc founded an expressionist art movement called *Der Blaue Reiter* (The Blue Rider). During this period, Kandinsky painted with bright, pure colours in a free, spontaneous style. He wrote about his ideas in his book *Concerning the Spiritual in Art* (1912). One of his works from this period, *Little Pleasures, No. 174*, appears in the **Painting** article.

During World War I (1914-1918), Kandinsky returned to Russia and was a teacher in Moscow. In 1921, he moved back to Germany and his art changed dramatically. His paintings became more ordered, geometric, and completely abstract. From 1922 to 1933, he taught the theory of form at the Bauhaus school of design in Germany. He described his ideas from this period in his book *Point and Line to Plane* (1926). Kandinsky's paintings and theories made him a forerunner of the abstract expressionist movement that flourished in the United States during the 1940's and 1950's.

See also **Painting** (Expressionism).

**Kane, Paul** (1810-1871), a pioneer Canadian painter, was the first artist of importance to paint North American Indians. He travelled great distances in canoes, on horseback, and on snowshoes in order to study his Indian subjects. The result was a series of pictures of great artistic and historical value. He also published an account of his travels, *Wanderings of an Artist Among the Indians of North America* (1859). This account describes in a faithful and interesting manner the habits and customs of the Plains and the Pacific Coast Indians he saw on his travels. Several of Kane's pictures of Indians and Indian life appear in the article **Indian, American**.

Kane was born in County Cork, Ireland, and moved with his parents to Canada in 1818 or 1819. He studied art in Canada and in Europe.

See also **Canada**, **History** of (picture: The fur trade).



Oil painting on canvas (1926). The Solomon R. Guggenheim Museum, New York City  
**Kandinsky's Calm, No. 357** was one of the abstract geometric compositions that the artist began painting during the 1920's



**Red kangaroos** are among the largest kangaroos. Like all kangaroos, they can carry their young in their pouch. Each of their jumps can cover distances of from 4 to 8 metres.



**Kanem** was one of the longest-lasting empires in history. It began on the northeast side of Lake Chad in Africa during the A.D. 700's and lasted until the late 1800's. At its height, Kanem included parts of what are now Cameroon, Chad, Libya, Niger, Nigeria, and the Sudan.

The prosperity of Kanem depended on trade. Copper, horses, metalware, and salt from North Africa, Europe, and Asia were traded in Kanem's markets for ivory and kola nuts from the south. The rulers of Kanem maintained a powerful army that kept the trade routes safe and collected a tax from traders.

The Sefuwa royal family ruled Kanem from the 800's to the 1800's. The rulers converted from tribal beliefs to Islam, the Muslim religion, in 1086. They began to expand their territory at about the same time. After Bornu, on the southwest side of Lake Chad, became a province of Kanem, the empire was often called Kanem-Bornu. In the late 1300's, Bulala people conquered the part of Kanem on the northeast side of Lake Chad, and the emperor fled to Bornu. Mai Idris Alooma, who ruled Kanem from 1580 to 1617, reconquered the lost territory and extended the empire to its greatest size. Little is known about the empire from 1617 to the early 1800's. It probably began to decline because trade centres shifted from inland routes to the coast. European powers gained control of the empire in the late 1800's.

**Kangaroo** is a furry animal that hops on its hind legs. Kangaroos are the largest members of a group of mammals called *marsupials*. Among most marsupials, including kangaroos, the females have a pouch on the stomach. They give birth to tiny offspring, which complete their development in this pouch. Kangaroos live only in Australia and nearby islands.

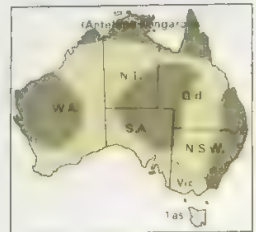
### Types of kangaroos

The kangaroo family includes about 50 species. They range from giants, such as the red and the grey kangaroos, to tiny creatures smaller than a domestic cat.

Scientists classify members of the kangaroo family into three main groups. Large kangaroos (including the red and grey kangaroos and the euros or wallaroos), tree kangaroos, and wallabies form one group. Rat kangaroos, which include bettongs and potoroos, form the second group. Musky rat kangaroos form the third.

**Red and grey kangaroos** are the best-known members of the kangaroo family. Red kangaroos live on the grassy plains of the Australian inland. Western grey kangaroos extend from the southwest coast into South Australia, northwest Victoria, and western New South Wales. Eastern grey kangaroos live in eastern and central Queensland and in Tasmania.

**Kangaroos** live in most parts of Australia. *Red kangaroos* live in the interior plains. *Grey kangaroos* live in coastal forests and savannahs. *Euros*, except for the *antelope wallaroos*, inhabit hilly areas.



Area of Kangaroos

### Euros



Red kangaroos

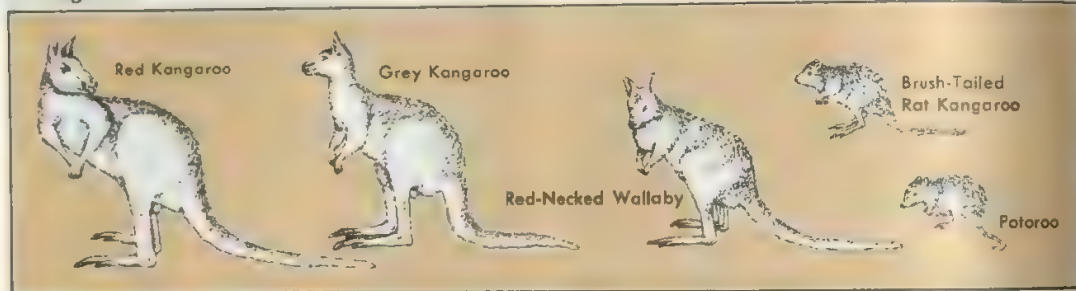


Grey kangaroos



### Comparative sizes of kangaroos

Kangaroos vary greatly in size. Red kangaroos and grey kangaroos can be nearly 300 centimetres from nose to tail. The potoroo is only 60 centimetres long.



**Euros or wallaroos** range over the whole of the mainland of Australia, particularly in hilly country. Their colour ranges from very dark, almost black, to a reddish-brown similar to the male red kangaroo.

**Antilopine wallaroos** of the northern Australian plains look something like euros, but are more graceful when hopping.

**Tree kangaroos** live in trees in the rainforests of northeastern Queensland and New Guinea. They have short hind legs and *prehensile* (gripping) tails.

**Wallabies** are really just small kangaroos. There is no difference between wallabies and kangaroos except size. Even in size, there can be an overlap, because some animals known as wallabies may be larger than some called kangaroos. The well-known red-necked wallaby of eastern Australia is usually called a kangaroo in Tasmania. Agile wallabies are extremely common throughout northern Australia. Their range extends from the coastal forests into southern Queensland. Rock wallabies are found in rocky outcrops in many parts of Australia. These wallabies bound along cliff faces with the agility of goats.

**Pademelons** are small wallabies that generally live in wet, forested areas.

**Quokkas** are among the most famous of the smaller members of the kangaroo family. These wallabies are about the size of a hare, and they have short tails. They live on islands off the southwestern Australian coast. They also inhabit the mainland. Much of the basic research on kangaroos was carried out on this species.

**Rat kangaroos** range up to the size of a rabbit. They include the rare burrowing bettong, which excavates huge underground warrens with many entrances. Other bettongs build nests of vegetation. The related potoroos most resemble rats because they have extremely short hind limbs and a pointed snout.

**Musky rat kangaroos** are rat-sized. They have five toes on the hind foot, instead of the usual four of the other members of the kangaroo family.

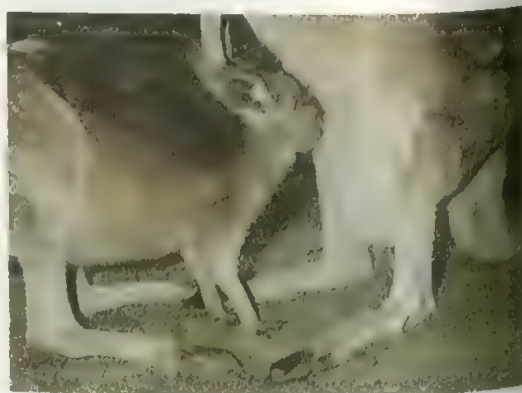
### The body of a kangaroo

Grey kangaroos and red kangaroos grow slightly larger than wallaroos and antilopine wallaroos. Most adult grey and red kangaroos stand about 1.8 metres tall and weigh about 45 kilograms. But male red kangaroos grow over 2 metres tall and can weigh more than 70 kilograms. Females are much smaller than males.

Kangaroos have a small, deerlike head and a pointed snout. They have large, upright ears that they can turn



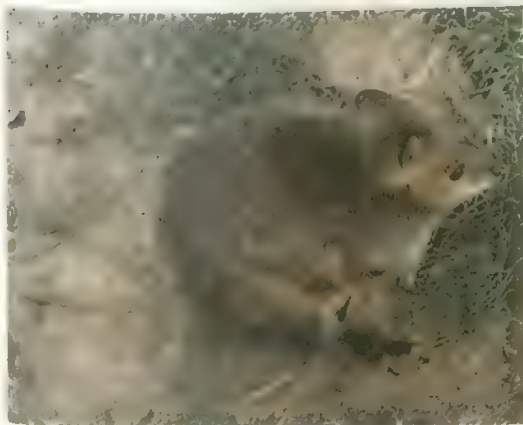
**Grey kangaroos** keep their young joeys, *above*, in their pouches for about 300 days. The young drink their mothers' milk until they are about 18 months old, *below*.



**Kangaroo feet** perform special functions. Their front feet, *left*, are used to lift food. The nail on the large fourth toe of their back feet, *right*, can be used for fighting.



**Swamp wallabies** feed on various grasses, leaves, and bark. They live along the eastern coast of Australia and are common in wet forest areas.



**Quokkas** are short-tailed wallabies that are found on Rottnest and Bald islands located off the coast of Western Australia. Scientists have used them for research.

from front to back. The body of a kangaroo is covered with short fur that varies in colour among different species. Among most species, the fur is brown or grey. But animals of the same species may have different colours of fur. For example, male red kangaroos may be red or grey, and females may be bluish-grey.

Kangaroos have large, powerful hind legs and small front legs. The tail of the larger species grows more than 90 centimetres long. A kangaroo uses its tail to keep its balance when hopping and to support itself



**Tree kangaroos** live in rain forests in northern Queensland. These tree-climbing members of the kangaroo family leap from one branch to another.



**Euros** are also known as *wallaroos* and *hill kangaroos*. In hot weather, they lie in rocky outcrops by day and feed at night on grass in flat open country.

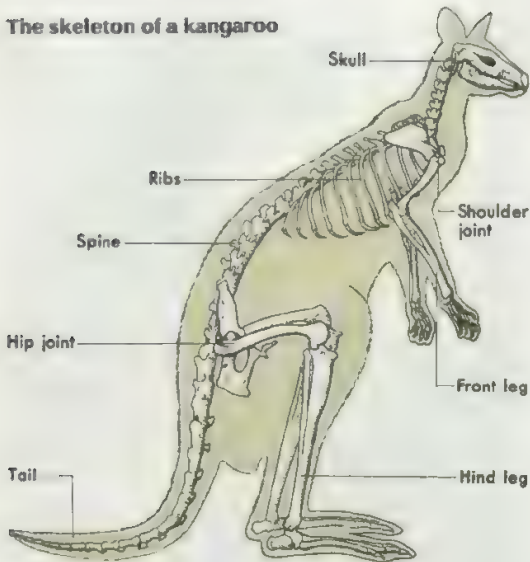
when standing upright or walking on all four legs. When a kangaroo hops, it uses only its hind legs, which it moves together. The large kangaroos can hop as fast as 64 kilometres per hour for short distances. They can leap over obstacles as high as 1.8 metres.

#### The life of a kangaroo

Scientists have studied red kangaroos more than the other species. These kangaroos probably live from six to eight years in their natural surroundings. Except for fe-



## The skeleton of a kangaroo



males with their young, they spend most of their time alone. However, several hundred red kangaroos may live in a group called a *mob* if food or water is scarce. During the summer, red kangaroos rest during the day and search for food at night. But during cool months, they may also feed during the day.

Red kangaroos breed at any time of the year, except when food and water are scarce. About a month after mating, the female gives birth to one *joey* (baby)—if an older joey is not in her pouch. A newborn joey measures only about 2.5 centimetres long, and its eyes, ears, and hind legs are not developed. Immediately after birth, the joey crawls up its mother's abdomen and into her pouch. There, it attaches itself to a nipple and nurses on the mother's milk. The mother may become pregnant again within a few days. But she does not give birth again until the older joey leaves her pouch. The joey leaves its mother's pouch for the first time after about six months, but it returns at any sign of danger. It leaves permanently after about eight months. Within a day, the mother gives birth to another joey.

### Conservation

Today, kangaroos occur in vast numbers. One study showed that the inland plains of New South Wales alone have 2 million red kangaroos and about 1½ million grey kangaroos. Queensland has even larger numbers.

Although younger kangaroos may have a number of natural enemies, the mature ones are troubled only by dingoes and wedgetail eagles. Aborigines used to hunt kangaroos for food, but they had come to a balance with their prey before British settlers arrived in 1788. As farmers cleared the land and introduced sheep and other animals that eat grass, they changed the environment in which the kangaroos lived. In some cases, this caused a great reduction in the numbers of kangaroos, particularly among some kinds of wallabies. The toolache wallaby, which was once found in South Australia and Victoria, is now regarded as extinct. In other cases, the changes brought about by people assisted the kangaroos for a time until heavy hunting eventually brought

many kangaroo populations to low numbers. Today, all states have instituted a variety of controls that should ensure the future safety of the animals.

Authorities disagree as to how much kangaroos affect grass available for sheep and cattle. Evidence indicates that they usually make little difference to the numbers of stock that can be supported. With the policies of the states regarding the shooting of kangaroos and the increasing numbers of national parks, it seems that the larger kangaroos are safe from extinction. Smaller members of the family are more vulnerable.

**Scientific classification.** Kangaroos and their relatives belong to the marsupial family, *Macropodidae*.

See also **Marsupial; Pademelon; Quokka; Tammie; Wallaby.**

**Kangaroo court** is a slang term for an unauthorized gathering of persons who take the law into their own hands by acting as a court. Such groups usually disregard the principles of law and justice, and impose unfair or intemperate punishments.

The term is thought to have arisen in Kansas or Ohio, in the United States. Pioneer judges travelled from place to place handling trials summarily, and were paid with the fines from convicted prisoners. These leaps from place to place gave rise to the term *kangaroo court*. Critics of lawfully appointed courts have often used the term to indicate their dissatisfaction with the judgments of such courts.

**Kangaroo Island** is the largest island off the coast of South Australia. It is 145 kilometres long and 44 kilometres wide at its widest point. It has an area of 4,300 square kilometres and is the third largest island in Australian waters. The island is about 145 kilometres south of Adelaide. It is separated from the mainland by Investigator Strait.

The island has a population of 3,903. Most of the people work as farmers, growing wheat, barley, and oats, and rearing sheep and cattle. Other industries include fishing and the production of honey, yacca gum, eucalyptus oil, salt, and gypsum.

Tourism is one of the main sources of income on the island. The island has 970 square kilometres of national reserve known as *Flinders Chase*. Tourists can see fairy penguins and enjoy the rugged natural coastline. The island is linked to Adelaide by a regular air service. The main towns are Kingscote, Parndana, and Penneshaw.

The British explorer Matthew Flinders discovered the island in 1802 and named it in gratitude for the large number of kangaroos his men killed for food. The French explorer Nicolas Baudin sailed around the island in 1803. Before 1836, there was no official settlement in the area. It was inhabited mainly by escaped convicts and sailors. Away from restraints of civilization, these men led lawless lives. They lived by whaling, sealing, and cultivating small plots of land. After 1827, many inhabitants became more settled under the self-appointed government of a private individual, Robert Wallen.

The first colonists on the island from South Australia arrived aboard the *Duke of York* in July 1836. They landed at Nepean Bay. They established a temporary depot and whaling station under the supervision of Samuel Stephens, first manager of the South Australian Company. The settlers used items that they had brought with them, such as agricultural implements, tents, and

weapons. They also brought sheep, poultry, cattle, and goats. The settlement was named *Kingscote* after Henry Kingscote, then director of the South Australian Company.

See also South Australia.

**Kangaroo paw** is a flowering plant that grows only in Western Australia. There are about 10 *species* (kinds) of kangaroo paws. The plants have narrow leaves that grow straight from the ground and tall, slender stalks bearing heads of flowers. These heads are covered with dense wool of various colours, and they look like kangaroos' paws. The *red kangaroo paw* has bright-red wool on the lower part of the flower and brilliant-green wool on the upper part.

The *black kangaroo paw* has black wool on the base of the flower and green on the upper part. Other kinds have yellow, fawn, or brown wool.

**Scientific classification.**

Kangaroo paws belong to the bloodwort family, Haemodorraceae. The red kangaroo paw is *Anigozanthos manglesii*. The black kangaroo paw is *Macropidia fuliginosa*.



Red kangaroo paw

**Kangaroo rat** is a rodent that jumps around like a kangaroo on long, powerful hind legs. Kangaroo rats grow only about 38 centimetres long, including a tail of more than 20 centimetres. They have short front legs, large heads, and big eyes. Their silky fur is yellow or brown on the upper parts and white on the underparts.

Kangaroo rats live in the deserts of the Southwestern United States and Mexico. They nest in *burrows* (tunnels) and come out at night to gather plant food. They use their small front feet to stuff food into fur-lined pouches on the outside of their cheeks. They carry the food back to their nests. Kangaroo rats, like their relatives the *pocket mice*, do not need to drink water. They use the water that is produced when food inside them combines with the oxygen they breathe.

**Scientific classification.** Kangaroo rats belong to the pocket mouse family, Heteromyidae. They are in the genus *Dipodomys*.

**Kania, Stanislaw** (1927- ), served as first secretary of the Communist Party of Poland from September 1980 to October 1981. As first secretary, he was the most powerful leader in Poland. Under Kania, Poland's economic problems, including food shortages, increased. Labour unrest, led by Solidarity—an organization of trade unions—also grew. The Central Committee of the Communist Party then forced Kania to resign. See Poland (Recent developments).

Kania was born in the village of Wrocanka, near Krosno. He joined the Communist Party in 1945. He was elected to full membership of the party's Central Committee in 1968 and of the Politburo in 1975.

**Kanishka** ( ? -A.D. 160?) was the greatest ruler of the Kushan Empire, which flourished in what is now Pakistan, Afghanistan, and northwest India from about A.D. 50 to the mid-200's. Kushan political power and art reached their peaks under his leadership.

Kanishka created a great council of Buddhist monks,

and missionaries spread Buddhism to China during his reign. At his capital, Peshawar, he built a famous towering monument to house relics of Buddha.

Kanishka sponsored the Gandharan school of sculpture, one of the first schools to produce stone images of Buddha. Earlier, sculptors had created things only associated with Buddha, such as his footprints. Kanishka probably adopted the *Saka Era*, a calendar system still used by the Indian government.

See also Kushan Empire.

**Kano School** was a group of Japanese painters whose members were all drawn from one family. Successive generations of the Kano School formed a dynasty that lasted from the 1400's to the 1800's and provided Japan's leading artists of that period. In the 1600's, members of the Kano School set standards for Japanese painting that persisted for more than 200 years.

The artists of the Kano family made brush-and-ink paintings on paper screens and sliding panels. The Kano painters were influenced by single-colour paintings produced by Chinese priests during the 1100's and 1200's. The first Kano paintings used subdued colours combined with strong brushwork. Later, members of the school used bolder brushwork and bright colours, often on gold-leaf backgrounds. All the Kano artists were official painters to the Japanese *shoguns* (military rulers), and their paintings often reflected the political ideals of the shoguns.

The founder of the Kano School was Kano Masanobu (1434-1530), the son of a *samurai* (warrior) who was an amateur artist. Masanobu's son, Kano Motonobu (1476-1559), combined Chinese ink-painting techniques with the native Japanese style. Kano Eitoku (1543-1590), the grandson of Motonobu, introduced bold brushwork and bright colours on a gold-leaf background. He also made his figures stand out by edging them with a thick, black outline. Kano Tanyu (1602-1674) was noted for his pictures of historical figures and his return to the subdued colours of the earlier Kano style. His most famous painting was *Confucius and two disciples*.



Winter; Kano School mid 1400's

**Kano artists** produced attractive pictures featuring animals, flowers, or trees.





**All Souls Memorial Church in Kanpur**, built in 1875, commemorates Britons massacred during the Indian Revolt.

**Kanpur** (pop. 2,103,483) is the largest city in Uttar Pradesh, a state in northern India. Kanpur lies on the west bank of the Ganges River and straddles the Grand Trunk Road. It is also the junction for four railway systems and has its own airport. For location, see **India** (political map).

Kanpur factories produce brushes, chemicals, cotton, flour, glass, leather goods, paper, silk, sugar, vegetable oil, and wool. There are modern buildings in many parts of Kanpur. The city's oldest section, in the west, has narrow, winding streets lined by crowded buildings.

An Indian leader ceded Kanpur, then called *Cawnpore*, to the British East India Company in 1801. The town's convenient position, with a pontoon bridge across the Ganges, fertile surrounding countryside, and the presence of a British army base, brought prosperity. By 1857, Cawnpore had about 100,000 inhabitants.

In 1857, Indians massacred the entire British population of the city, about 1,000 troops and their families. This brutal massacre was part of the Indian Revolt (see **Indian Revolt**). A British punitive force later routed the rebels and exacted merciless revenge.

In the 1900's, military demand for boots and shoes, particularly during wartime, kept Cawnpore's factories working at full stretch. But booming production and full employment also led to problems of overcrowding. The vast slums could not cope with the rapid growth in population. Many workers were forced to live alone, leaving their wives and families in their village homes.

Nearly a third of Cawnpore's inhabitants were Muslims. In 1931, the Congress Party tried unsuccessfully to make reluctant Muslims join in anti-British protests. The result was three days of looting, destruction, and killing in the congested slums. Harmony was never fully restored. In 1948, the city's name was officially changed to Kanpur.

**Kansas** is a Midwestern state of the United States. It is the leading U.S. state in wheat production. One of the state's nicknames is *Breadbasket of America*. Kansas also produces more civilian aeroplanes than any other U.S. state. The capital of Kansas is Topeka.

Kansas has a colourful history. Many books, films, and



**The plains of Kansas** produce huge harvests of wheat. Kansas wheat fields are so productive that the state has earned the nicknames *Breadbasket of America*.



**Kansas** is a state in the Midwestern region of the United States. It lies midway between the Atlantic and Pacific oceans.

television programmes tell about the cattle trails, cattle towns, and cowboys of the late 1800's. Wyatt Earp, Wild Bill Hickok, and Bat Masterson were among the lawmen who kept the peace in Dodge City and other wild cattle towns of Kansas.

**Land.** Most of Kansas is a rolling plain that increases in elevation from east to west. The Dissected Till Plains cover the northeastern corner of the state. During the Ice Age, this region was covered by huge glaciers that left deposits of rich soil.

The Southeastern Plains extend across a large portion of the eastern third of Kansas. Much of this region is gently rolling country, used chiefly for grazing. The Great Plains cover the western two-thirds of Kansas. The land rises from about 450 metres in the east to about 1,200 metres in the west at the Colorado border. In the southwest are small canyons.

**Economy.** Service industries employ about two-thirds of the workers in Kansas. Wholesale and retail trade form the leading service industry. The wholesale trade includes farm products, groceries, and motor vehicles. Other services are education, finance, government, health care, and transportation.

Wichita and Kansas City are the state's largest towns and industrial areas. The Kansas City area is the state's leading financial centre. The Wichita area is the leading U.S. manufacturing centre for light aeroplanes. Aviation and railway equipment, and cars are also manufactured. Food processing, especially flour milling and meat packing, is also important.

### Facts in brief

**Population:** 2,485,600.

**Area:** 213,098 km<sup>2</sup>.

**Climate:** Average July temperature—23° C. Average January temperature—-1° C.

**Elevation:** Highest—Mount Sunflower, 1,231 m. Lowest—Verdigris River in Montgomery County, 207 m.

**Largest cities:** Wichita, Kansas City, Topeka, Overland Park.

**Chief products:** Agriculture—beef cattle, wheat, grain sorghum, hay, pigs, maize, soybeans. Manufacturing—transportation equipment, food products, chemicals, printed materials, machinery. Mining—petroleum, natural gas.

**Origin of name:** Kansa, or Kaw, Indians.

**Nickname:** Sunflower state.

Beef cattle and wheat are the chief farm products in Kansas. The leading mineral products in the state are petroleum and natural gas.

**History.** Before white settlers arrived, the Kansa, Osage, Pawnee, and Wichita Indians probably lived in Kansas. Other tribes arrived during the early 1600's.

In the late 1600's, French explorers claimed the region for France. France sold the whole region to the United States in 1803. (see *Louisiana Purchase*). The Plains Indians in the west battled against incoming white settlers. Eventually the tribes were moved to Oklahoma.

In the 1850's, fighting over the slavery issue gave the territory the nickname *Bleeding Kansas*. Kansas became a U.S. state in 1861. From the late 1860's to the mid-1880's, cattle drives took place from Texas to Kansas rail towns. The drives ended when railways reached Texas.

In the 1870's, Mennonite immigrants from Russia took Turkey Red winter wheat to Kansas. It grew well despite summer heat and insects, and wheat-growing increased.

Western Kansas suffered a severe drought with damaging dust storms during the 1930's. Irrigation with ground water, a major development of the 1960's, allowed farmers to grow crops in dry areas. Agriculture is still important, but the population of Kansas is now largely urban.

**Kansas City** (pop. 584,913; met. area pop. 1,566,280) is an industrial city in the Midwestern region of the United States. The city is located at the meeting point of the Kansas and Missouri rivers and lies in two states, Kansas and Missouri. It ranks as an important urban centre in both states. Kansas City in Missouri covers 821 square kilometres and has a population of 435,146. It is Missouri's largest city. Kansas City in Kansas covers about 290 square kilometres and has a population of 149,767.

Kansas City is often called the *Heart of America* because it lies almost in the middle of the United States. This location has helped make the city a distribution, transportation, and warehouse centre. It is also an agricultural centre of the Great Plains region of the United States. Grain silos in the city store great quantities of wheat. Kansas City produces large amounts of wheat flour.

Other important industrial activities include food processing, and the production of cars, chemicals, electrical equipment, farm machinery, and metal goods.

Several railway freight lines serve the city, which is one of the busiest rail centres in the United States. Kansas City International Airport opened in 1972.

Kansas City was named after the Kansa Indians, who once lived in the area.

**Kant, Immanuel** (1724-1804), was a German philosopher. The central problem of his chief work, the *Critique of Pure Reason* (1781), is the nature and limits of human knowledge. This problem seemed important to him because of David Hume's findings. Until Hume's time, almost everyone had taken for granted that we are justified in making generalizations based on a few cases. "All bodies gravitate" is an example of this kind of generalization. Hume asked how we can possibly know that *all* bodies gravitate since we have seen and measured only a few of them. Hume had challenged other philosophers and scientists to produce evidence that would allow us to make assertions about things we have not actually experienced (see *Hume, David*).



**Kant's ideas.** Kant believed that it is not possible to find such evidence as long as we continue to think of the mind and its objects as separate things. He held instead that the mind is actively *involved* in the objects it experiences. That is, it organizes experience into definite patterns. Therefore, we can be sure that all things capable of being experienced are arranged in these patterns even though we may not yet have experienced them. We can have knowledge of things that have not been experienced as well as those we have already experienced.

This answered Hume's challenge, but it meant having to abandon any claim to know things as they are in themselves, things in which the mind is not involved. Some philosophers regarded this refusal to claim absolute knowledge as too serious a limitation on a system of philosophy. Other philosophers argued that we have an intuitive, nonrational knowledge of things.

**Other works.** In addition to his *Critique of Pure Reason*, Kant also wrote on aesthetics and ethics. In ethics, he tried to show: (1) that doing one's duty is more important than being happy or making other people happy, and (2) that even assuming that scientists can predict what we are going to do, the predictions do not conflict with our use of free will. Therefore, the predictions of scientists have no bearing on our duty to live morally. Kant's chief work on ethics is the *Critique of Practical Reason* (1788). Further comments on his two main works were published as *Critique of Judgment* (1790).

Kant never travelled. He was born and lived in Königsberg, in East Prussia (now Kaliningrad, in Russia). He taught near Königsberg from 1746 to 1755, and then taught at Königsberg University until his death nearly 50 years later. His work was epoch-making because he established the main lines for philosophical developments since his day.

See also **Ethics** (Later European).

**Kaolan.** See **Lanzhou**.

**Kaolin** is a pure white clay made of feldspar that has decomposed. It consists of the mineral kaolinite, which has the chemical formula  $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$ . Kaolin occurs as a fine powder made of tiny platelike crystals. It is widely used for making the highest grades of pottery. The word *kaolin* comes from a Chinese word meaning *high hill*. Kaolin is also called *china clay* and *porcelain clay*. Important kaolin-producing countries include the United States, Great Britain, France, and Germany.

Kaolin is either mined dry with a shovel, or dislodged with jets of water and sucked into a pump system. Then it is washed and put through separation processes to remove sand, mica, and iron-oxide impurities. Excess water is then removed, and the clay is formed into cakes that are dried and shipped to potteries.

Kaolin is also used in textiles, as a coating for paper, and as a filler for rubber tyres.

See also **Porcelain**; **Pottery**.

**Kapitsa, Pyotr** (1894-1984), a Soviet physicist, became well known for his work in low-temperature physics and in magnetism. From 1924 to 1934, he worked on magnetism at the Cavendish Laboratory and as director of the Royal Society Mond Laboratory, both in Cambridge, England. In 1934, he visited the Soviet Union, and was not allowed to return to England. He became director of the Institute for Physical Problems of the Academy of

Sciences of the U.S.S.R. Kapitsa won the 1978 Nobel Prize for physics. He was born in Kronshtadt, Russia.

**Kapok** is a light, soft, lustrous, cottonlike fibre. It is chiefly composed of the plant material cellulose. It comes from the seedpods of the kapok tree. Kapok trees grow in Indonesia, the Philippines, India, Sri Lanka, tropical America, and Africa.

After the ripe fruit of the kapok tree is picked, the seeds and fibres are taken out and dried in the sun. Workers then separate the seeds and fibres, and pack the fibres into bales.



**The kapok flower, upper left**, usually blossoms every other year. The tassellike flowers are small and normally have an off-white colour. Kapok fibre, **upper right**, comes from the tree's seedpods. The cottonlike fibre is used to fill mattresses and other products. The kapok tree, **right**, has a short, thick trunk and many long branches. It grows in tropical climates.



Kapok is light and vermin-proof, and does not absorb water readily. It is useful as a filling for mattresses and furniture, and also as a substitute for cork in life jackets. But in many of these uses kapok is being replaced by synthetic fibres, which cost less and are more durable.

The seeds of the kapok yield an oil used in making soap and cattle feed. The tree produces a gum used in medicine. The light, soft wood is used for canoes and rafts.

**Scientific classification.** The kapok, or silk-cotton, tree belongs to the bombax family, Bombacaceae. It is *Ceiba pentandra*.

**Kara Sea**, an arm of the Arctic Ocean, lies off the northern coast of Siberia, between the Kara Strait and the Severnaya Zemlya Islands. The Kara Sea is about 1,450 kilometres long and 970 kilometres wide. Ice blocks the sea most of the year, but shipping to the Yenisey River and the Ob River takes place for about two months in summer. The Kara Strait connects the sea with the Barents Sea.

**Karachi** (pop. 5,208,170) is the largest city and chief port of Pakistan. It is also the country's leading commercial and industrial centre and the capital of Sind Province. The city lies on Pakistan's southern coast, which



**Herbert von Karajan** was one of the most celebrated conductors of the 1900's.

borders the Arabian Sea. For location, see **Pakistan** (political map).

**The city** is at the edge of a desert on the Sind Plain. The Layari River flows through Karachi and forms an excellent harbour where it empties into the Arabian Sea.

The centre of Karachi, which is next to the harbour, is the most heavily populated section of the city. It includes most of Karachi's important buildings. Attractions in or near this area include the Mausoleum of Mohammed Ali Jinnah, the National Museum, and the Zoological Gardens. Residential areas are scattered around the city, and the chief industrial districts are in the suburbs. Suburban towns have been built beyond the city limits to provide housing for the rapidly growing population.

Karachi is an important educational centre and has a university and many other schools. Several departments of Pakistan's government are in the city. The Karachi area also includes a number of popular beach resorts.

**Economy.** Factories in the Karachi area manufacture textiles, printed materials, steel, food products, chemicals, transportation equipment, and other products. The city has a shipyard, and its port serves as the gateway for Pakistan's foreign trade. Railways link Karachi to northern Pakistan. Karachi's international airport, one of the largest airports in Asia, is 14 kilometres from the city's centre.

**History.** In 1729, a trading village developed near the present site of Karachi's harbour. The village was soon named Karachi. By the mid-1800's, about 14,000 people lived in Karachi and its suburbs. After the British gained control of the region in 1843, Karachi became an important port and commercial centre. In 1947, Pakistan won independence from Great Britain. Karachi served as the new nation's capital from 1947 to 1959, when Islamabad was named the capital.

Since 1945, Karachi's population has grown from about 400,000 to over 5 million. The city faces many problems associated with its rapid growth. For example, it has a shortage of fresh water, which must be pumped

from the interior of Pakistan. Other problems include air pollution, overcrowding, and slums.

**Karagöz.** See **Turkey** (The arts).

**Karajan, Herbert von** (1908-1989), was one of the leading symphony orchestra and opera conductors of the 1900's. Karajan was known for his interpretations of the symphonies of Gustav Mahler and the music of Viennese composers of the 1900's.

Karajan was born in Salzburg, Austria, and received his musical training there and in Vienna. He served as music director, conducting opera and orchestral music in Aachen, Germany, from 1934 to 1941. In the late 1940's, he became a conductor of the Vienna Philharmonic and Vienna Symphony orchestras. He served as artistic director of the Berlin Philharmonic Orchestra from 1955 until he resigned in 1989. He was artistic director of the Salzburg Festival from 1956 to 1960 and from 1964 to 1988. Karajan was director of the Vienna State Opera from 1956 to 1964, returning to the company in 1977.

**Karaka** is a round-headed tree native to New Zealand and its offshore islands. It grows to between 3 and 5 metres high. It has glossy, dark green, laurellike leaves, and sprays of small, greenish flowers. The orange fruit is shaped like a small plum and grows to about 3 centimetres long.

The karaka tree is important to the Maori peoples. Maoris wear wreaths of karaka leaves when visiting the graves of their ancestors. Karaka trees are often found growing around Maori ceremonial houses. The seed kernels of the karaka are dried and eaten on special occasions. The seeds are extremely poisonous if eaten untreated. To remove the poison, the seeds are first baked in earth and then washed in running water. The fleshy part of the karaka fruit is also eaten.

**Scientific classification.** The karaka belongs to the family *Corynocarpaceae*. It is *Corynocarpus laevigata*.

**Karakul** is a fat-tailed sheep from which pelts called broadtail, Persian lamb, and caracul are obtained. Furriers use the pelts to make jackets, coats, and hats.

Karakuls are lean and have narrow backs. They can store up enough fat in their tails and back legs to live on



**Karakuls** are reared chiefly in central and southwestern Asia. Their thick, wavy fleece has great commercial value.



when food is scarce. The *rams* (males) have wide-spreading, spiral horns, but the *ewes* (females) usually have none. The coarse fleece of the adult is white, yellowish, grey, brown, or black. Young karakul lambs have a silky fleece, which in most cases is black. But it can be brown, tan, or grey. The fleece has a high lustre, and is often curled until the fifth day after the lamb's birth.

Broadtail is the most expensive karakul pelt. It has a silky, rippled appearance, and usually comes from lambs that were born too soon. Persian lamb, formerly called *astrakhan*, is the tightly curled pelt of lambs from 3 to 10 days old. Caracul is the wavy pelt of lambs not older than 2 months.

Most karakul skins are produced in central and southwestern Asia, India, southwestern Africa, and southeastern Europe. The skins of young goats are sometimes called *caracul*.

See also **Sheep** (picture).

**Karakum** is a large desert that occupies most of Turkmenistan. Karakum covers 350,000 square kilometres. For location, see **Turkmenistan** (map). Most of the desert was formed by sandy deposits from a river called the Amu Darya. Karakum's terrain includes flat clay plains, salt basins, and sand mounds. Short-lived bushes and grassy plants sprout in the spring. Wildlife in the desert includes antelopes, wolves, wildcats, snakes, lizards, tarantulas, scorpions, and various rodents. Most of the desert is used throughout the year as pasture for sheep, goats, and camels. Farmers grow crops in irrigated oases along rivers. The 800-kilometre Karakum Canal provides water for one of the world's largest irrigation systems. Karakum's mineral resources include natural gas, petroleum, and sulphur.

**Karamanlis, Constantine.** See **Caramanlis, Constantine**.

**Karat.** See **Carat**.

**Karate** is a form of unarmed combat in which a person kicks or strikes with the hands, elbows, knees, or feet. Karate is one of several Oriental forms of unarmed combat called *martial arts*. The Japanese word *karate* means *empty hand*. Most blows are aimed at body parts that are easily injured, such as the stomach and throat. A karate blow can cripple or kill someone.

There are four major types of karate—Chinese, Japanese, Korean, and Okinawan. All use the same basic techniques, but each stresses certain skills and has its own characteristic style of movement. For example, Korean karate, called *tae kwon do*, emphasizes kicking. Chinese karate, called *kung fu*, also spelled *gongfu*, uses a flowing, circular motion that differs from the hard, powerful movements of the other types. The type of karate learnt in Western countries often has a combination of Chinese, Japanese, Korean, and Okinawan features.

In the 1970's and 1980's, many films and television shows featured karate fights that have stimulated interest in this type of combat. In addition, growing numbers of men and women are learning karate as a means of self-defence. Hundreds of colleges, karate clubs, military and police training schools, and feminist groups teach karate techniques. Many people take part in karate contests as a sport.

**Karate training** usually takes place in a gymnasium. Students and teachers wear a pyjama-like costume that consists of a white cotton jacket and trousers and a coloured belt. They train in bare feet.

The students begin by doing exercises to strengthen and stretch their muscles. They toughen their hands and feet by pounding padded boards. The students practise with punch bags, imaginary opponents, and each other. When working with each other, they either stop short of hitting or touch their opponent only lightly. A person strikes with full force only in self-defence.

Karate students may advance through various ranks of achievement, each of which is designated by a belt of a different colour. Beginners wear a white belt, and experts wear a black one. Schools award different colours, including brown, green, and purple, for intermediate ranks. Students earn promotion by demonstrating to a licensed examiner or a group of licensed examiners the techniques required for the next rank.

**Basic techniques** include *stances* (ways of standing) and methods of blocking, kicking, punching, and striking. Stances include the *back stance*, *cat stance*, *forward stance*, and *horseback-riding stance*. Blocking methods try to stop an opponent's attack. Kicking techniques in-



**Karate training** includes practice in kicking and striking techniques. When karate students train, they stop short of hitting each other, or they touch their opponent only lightly.

clude the *front kick*, *hook kick*, *roundhouse kick*, and *side kick*. Punching involves hitting with the knuckles of the first two fingers. Striking uses other parts of the hand. For example, the edge of the open hand is used to strike the *knife-hand* blow. Students of karate often practise these techniques in prearranged patterns called *forms*.

Sound plays an important part. An attacker often yells *yah!* or *yiah!* to put maximum force into the blow. This yell is produced by expelling air from the lungs and tightening the stomach muscles. Sometimes, an attacker yells before striking to startle an opponent.

Many karate exhibitions include demonstrations of breaking various objects with the hands and feet. But most karate schools do not require students to practise these techniques.

**Karate contests.** There are two kinds of karate contests, form competition and free fighting. In *form competition*, each contestant demonstrates various forms to a panel of five judges. Each judge awards the contestant 1 to 10 points, and the one with the highest total wins the competition.

In *free fighting*, the contestants fight without prearranged techniques. A referee and four judges watch each match. A contestant scores when he delivers a blow that a majority of the judges consider effective. A blow must start with full force but stop a split second before it hits. Blows to the middle of the body may make light contact. Rules forbid hitting certain areas of the body and using many dangerous karate blows.

**History.** As early as the 400's B.C., Buddhist monks in India used a form of karate to defend themselves against wild animals. During the A.D. 500's, a group called the *Hwarang* practised karate in the country of Silla, which later became Korea. The *Hwarang* were youths picked for training as military leaders.

Karate developed further in the 1600's on the island of Okinawa. A Japanese clan had conquered the island and passed strict laws against owning weapons. As a result, the Okinawans developed many of the unarmed techniques of modern karate. Karate spread to Japan after Okinawa became a Japanese province in 1879.

**Karelia** is an autonomous republic in Russia. It lies in the northwest part, east of Finland and south of the Murmansk *oblast* (region). It covers 172,400 square kilometres and has about 769,000 people.

Karelians, a Finnish-speaking people, make up most of the population. Rocky ridges, great pine forests, and thousands of lakes cover much of the land. The timber industry is Karelia's main economic activity. Mining and commercial fishing are also important industries. The capital and largest city is Petrozavodsk.

Karelia came under Russian rule in the late Middle Ages. But Sweden controlled part of the region from the 1200's to the late 1400's and from the 1600's to the early 1700's. Finland occupied part of Karelia from 1918 to 1920 and from 1941 to 1944.

See also Finland (History).

**Karitime System.** See King, Sir Truby.

**Karl Franz Joseph.** See Charles I.

**Karl-Marx-Stadt.** See Chemnitz.

**Karloff, Boris** (1887-1969), was a British actor known for his chilling performances in American horror films. Karloff gained fame playing the role of the monster in

*Frankenstein* (1931). Thereafter, he played a monster or a villain in most of his films. Karloff played parts in about 50 silent films and more than 100 sound films from 1919 to 1968.

Karloff's real name was William Henry Pratt. He was born in London and moved to Canada in 1909. Karloff toured Canada and the United States with small theatrical companies for several years before making his film debut. Karloff's best-known films include *The Mummy* (1932), *The Bride of Frankenstein* (1935), *Tower of London* (1939), *The Body Snatcher* (1945), and *The Raven* (1962). In addition, Karloff appeared in a number of Broadway plays, including *Arsenic and Old Lace* (1941) and *The Lark* (1955).



Boris Karloff

**Karlovy Vary**, also called Karlsbad (pop. 58,541), is a health resort in the Czech Republic. It lies on the Ohře River 115 kilometres west of Prague (see Czech Republic [map]). Its 19 mineral springs contain bicarbonate of soda, sulphate of soda, and common salt. The *Sprudel* spring has a temperature of 74° C and yields almost 1,900 litres of water a minute. Chief products include glassware, pottery, and china. Nearby hills have coal and kaolin (china clay).

**Karma** is an important concept in several Eastern religions, especially Hinduism, Buddhism, and Jainism. Followers of these religions believe that existence is a continuing cycle of death and rebirth. They teach that the conditions of a person's life result from his or her *karma* (deeds) in previous lives. Similarly, people's present actions determine their future destinies in this world, in heaven, or in hell.

Karma determines the form in which an individual will be reborn. Good deeds lead to rebirth in a higher state, perhaps as a wealthy person. Evil deeds may lead to rebirth as a slave or even as an animal. Thus, beliefs about karma both encourage ethical behaviour and explain what appear to be unfair conditions in society.

Buddhists, Hindus, and Jains all agree that the highest religious goal is to eliminate all attachments to worldly things and so free oneself from the consequences of karma. The individual then achieves a higher level of experience, called *moksha* by Hindus and *nirvana* by Buddhists.

See also Sikhism.

**Karnak, Temple of.** See Thutmose III.

**Karnataka** is a state on the west coast of southern India. It includes the region of Kanara, and the state's people are called *Kanarese*. Karnataka is famous for its goldfields and for the sandalwood from its forests.

### People and government

**People.** More than 29 million people speak *Kannada* (also called *Kanarese*), one of the four Dravidian languages of India. Many people in the border regions also speak one of the other southern languages, especially Tamil. Hindi is often used for business and trade. On





**Vidhana Soudha**, left, in Bangalore, is the building that houses the state legislature of Karnataka. It was completed in 1956. The large, stylized lions grouped on top of the main dome form the emblem of India.

the west coast, especially around Mangalore, Konkani is a widely used language. Many Muslims speak Urdu.

About 80 per cent of the population is Hindu. The Muslim community makes up about 10 per cent of the population. Nearly 3 per cent is Christian. There is also a small number of Jains and Buddhists. The state has some small communities with long-established identities, such as the Coorgis in southwest Karnataka. Most of the tribal people live in the north and west. They include the *nomadic* Lambanis, who move from place to place.

Three-fourths of the population live in rural areas. But Bangalore, the state capital, is one of India's most dynamic and attractive cities. It has become the centre of some of India's most advanced industries and one of the major cosmopolitan centres of the south.

About 40 per cent of the population can read and write. There are more than 40,000 schools, and some important centres of further education and training in the state. The University of Mysore has a long-established reputation. Bangalore has a number of research institutions, including a University of Agricultural Sciences.

Although standards of health care are above the Indian average, infant mortality rates in the state are still high by Western standards. More than 76 in every 1,000 infants die before they reach their first birthday. This figure is more than three times as high as in Kerala.

**Government.** Karnataka has 28 elected members in the *Lok Sabha* (lower house) and 12 nominated representatives in the *Rajya Sabha* (upper house) of the Indian national parliament. The governor of Karnataka, appointed by the president of India, is head of state. The state legislature has two houses. The lower house, the

state legislative assembly, has 224 members. The upper house, the legislative council, has 75 seats.

### Economy

**Agriculture.** Most of the people are employed in agriculture. More than half the state is cultivated. Agriculture contributes half the state's income. Although much of Karnataka has the same kinds of soils, there is great local variety in agriculture. The plains of the west coast are intensively cultivated. Rice is the main food crop. Other food crops are maize, millet, and *pulses* (beans, chickpeas, or pigeon peas). Sugar cane is the main cash



**Karnataka** is a state in South India with a coastline on the Arabian Sea.



A glass house in Karnataka houses a display, above, of fruit, vegetables, and flowers grown in the state.

crop. Other cash crops include cardamom, cashew nuts, coconuts, cotton, mulberry, peanuts, pepper, tea, and tobacco. Across much of the drier interior, millet is the staple crop. Vegetables and green fodder are important in local areas such as the Krishna floodplain. The Western Ghats hills in Karnataka are ideally suited to coffee production, especially in the southern parts. A Muslim saint, Babu Bhudan, introduced coffee beans into India in the 1600's and planted them in the south of Karnataka. Karnataka produces two-thirds of all the coffee grown in India. European coffee plantations date from 1840. There are some tea plantations on higher hills, but tea growing is not so important. Farmers grow bananas and oranges in irrigated lands in the east.

Cattle breeding is important in the far south. The Mysore Prince Hyder Ali bred fast-trotting bullocks for use in warfare at the end of the 1700's. The tradition of cattle breeding continues. *Pastoralism* (the herding of animals) is important on the open plateaus the southeast.

**Forest products.** Karnataka produces most of the world's sandalwood. Oil from sandalwood produced in the western forests of the Malnad region is a major export. These forests also yield teak and bamboo. Other forest products include gum, dyes for the tanneries, and *lac*, the raw material for *shellac* (see *Shellac*).

**Hydroelectric power.** Karnataka has enormous resources for generating hydroelectric power. In 1887, it became the first Indian state to generate electricity. The first hydroelectric site was at Gokak Falls. The fall of water from the high ranges of the Western Ghats through the plateau created several points where damming the rivers produces more capacity than Karnataka needs. This makes it possible for the state to export electricity to its neighbours. The Shivasamudram Falls, east of Mysore, were developed in the early 1900's, in the first large-scale hydroelectric development. The falls are 100 metres high. Further upstream, the Krishnarajasagar dam was built in 1927. This dam supplies power for Bangalore and other cities, and irrigation water.

**Manufacturing.** There are iron and steel works at Bhadravati and heavy engineering works in Bangalore.



A shopping centre in Bangalore, Karnataka, has display units and walkways on several levels, above, linked by escalators.

Cotton milling, sugar processing, and cement and paper manufacture are also major industries. Other industries include manufacture of earth-moving machinery, heavy electrical goods, machine tools, raw silk, and telecommunications equipment. Since the 1970's, Bangalore has become the centre of a rapidly growing electronics industry. The city's role as a military base has encouraged a wide range of industries related to telecommunications and aircraft manufacture. It is also the centre of India's fast-growing computer industry.

**Mining.** Karnataka's rocks are extremely rich in minerals such as chromite, copper, iron ore, gold, manganese, and mica. The state also has small amounts of *bauxite*, the ore from which aluminium is made. The Kolar goldfields, just east of Bangalore, produce 85 per cent of the country's gold. The gold mines (3,000 metres deep) are among the deepest mines in the world. Iron ore from the Babu Bhudan Hills is processed in the Bhadravati steel works.

**Transportation.** The Western Ghats have long been a barrier for railways. But the state has 2,500 kilometres of one-metre-gauge and 160 kilometres of narrow-gauge line. Bangalore is the main centre of the network and connects with Madras on the broad-gauge line. Mangalore on the west coast has no direct connection by rail with either Bangalore to the east or with Bombay to the north. A direct rail link from New Delhi to Mangalore involves 45 hours of continuous travel. Mangalore is also the terminus of the railway line from Kerala.

#### Facts in brief about Karnataka

**Population:** 1991 census—44,817,398.

**Area:** 191,791 km<sup>2</sup>.

**Capital city:** Bangalore.

**Largest cities:** Bangalore, Mysore, Hubli, Mangalore, Belgaum, Bijapur, Gulbarga.

**Chief products:** Agriculture—coffee, sandalwood, timber.

**Manufacturing**—aircraft, electronic equipment, telephones, watches. **Mining**—gold.

**Origin of name:** From *Kannada*, the language of most of the people.



There are 115,000 kilometres of road in the state, although only a third of the villages have all-weather road connections. The roads in the western part of the state are often impassable during periods of heavy rain. Bangalore has direct air connections with all other major Indian cities.

### Land

**Location and description.** Karnataka is located in southwestern India. On its western flank is a 320-kilometre coastline fringing the Arabian Sea. To its north and northwest are Goa and Maharashtra. Andhra Pradesh forms its eastern border, while in the extreme southeast it has a common border with Tamil Nadu. The state's southwestern border is with Kerala. Karnataka measures more than 700 kilometres from north to south and 500 kilometres from east to west.

**Land features.** The landscape of Karnataka largely consists of plateaus formed of rocks from the ancient peninsula. These range in age from 500 million to 4,000 million years and are among the oldest on earth. The hills of the Western Ghats rise steeply inland from a narrow, fertile coastal plain. Karnataka has a lush green coastline. Inland and parallel with the coast, the Western Ghats are generally lower in the north than in the south. They rise to between 760 and 915 metres above sea level. To the east of the ridge of the hills stretches a series of plateaus. These plateaus rise to about 600 metres in the north and to over 1,200 metres in the south. In the extreme north is a narrow belt of very poor thin soils, looking almost like a desert. To their south is a strip of volcanic lavas which give rich black soils more typical of Maharashtra to the north.

To the east of the ridges of the Western Ghats, a narrow belt of tropical evergreen forests gives way to *deciduous* woodland, where the trees lose their leaves in winter. In the south, where the Ghats rise to more than 1,800 metres, the headwaters of rivers such as the Tunga and Bhadra have cut deep valleys. The hills have beautiful forests with waterfalls and wildlife parks. The Jog

Falls on the Sharavati River near Shimoga are 250 metres high, and are among the highest in the world. Across central and eastern Karnataka is the rolling parkland of the lower plateaus.

Much of the state's natural vegetation disappeared as farming was extended. On the wet slopes of the Western Ghats, a narrow strip of dense tropical forest includes a number of hardwoods and many varieties of bamboo. On the more open plains to the east, teak and sandalwood are valuable natural species. Karnataka is famous as the largest coffee-growing state in India. The natural vegetation of much of the interior was once deciduous woodland or savannah.

The forests of the west are rich in wildlife. Wild boar, bears, and occasionally leopards and panthers are found. Elephants are also found in the southwest. The forests are also home to many reptiles, including king cobras. Peacocks are common.

**Climate.** The whole of Karnataka has a *monsoon* season (see *Monsoon*). Most of the rain comes within the five-month period from June to October. But in some areas, especially the west, there are two peaks of rainfall. Early rains come in May and are essential to the flowering of the coffee plants. After these rains there is a drier period in June and July, with a second wet spell in September and October. The altitude helps reduce temperatures over much of the state. Average temperature ranges from 20° C in December to 27° C in May, the hottest month. This comparative coolness makes cities such as Bangalore and Mysore particularly attractive.

**Rivers and lakes.** Three great rivers, the Kaveri, the Tungabhadra, and the Krishna, flow from the Ghats across the plateau to the east. The Kaveri flows south-east into Tamil Nadu, and irrigates the Thanjavur delta. In 1927, the Kaveri was dammed at Krishnarajasagar to create a huge reservoir. The Tungabhadra has also been dammed producing a lake which is used both for generating electricity and for irrigation. The Tungabhadra flows northeast from its source and joins the Krishna after crossing the state border with Andhra Pradesh.



**Agriculture** is the work of many people in Karnataka. Farmers feed dried millet leaves and stalks to livestock.



**A communal washpool** built in a nearby river or stream is a feature of many villages in the rural areas of Karnataka.



**Sculptured deities**, intricately carved, adorn much of the Hoysala temple built at Halebid, Karnataka, in about 1120.

## History

For most of its long history, the area of India now called Karnataka was not a single integrated state. At various times, different parts of it came under the authority of different dynasties. The dry upland border area between the densely forested ridge of the Western Ghats and the arid interior of the region provided the route for both commercial traders and invading armies.

The earliest known rulers of this area of southern India were the Monds. The Maurya, India's first imperial dynasty, conquered the Monds in the late 300's B.C. as they expanded their territories southward. According to tradition, Chandragupta Maurya, the first emperor of all India, embraced the Jain religion, renounced all worldly possessions, and withdrew to Sravanabelagoia in the Karnataka region. Archaeologists have located the urban centres that developed during the period of Maurya rule at Chandravalli and Brahmagiri.

After the Maurya, a succession of Hindu dynasties ruled the Karnataka region until the 1500's. From A.D. 200 to 1000, the Gangas ruled southern Karnataka but were often under pressure from other southern groups, such as the Pallavas. The reign of the Chalukya of Badami in central Karnataka from 535 to 757 saw major architectural developments in the region, as well as a flowering of fine arts and literature. The temples of Badami, Patadakal, and Aihole show the unique architectural style of the period.

The Rashtrakutas overthrew the Chalukyas in about 753. The Rashtrakutas tried to unite the plateau and the coastal areas as a means of capturing the north-south trade route. But they faced constant pressure from the Cholas in the south.

The Hoysala dynasty (1006-1345) also produced excellent art and architecture. The Hoysalas built about 50 temples throughout Karnataka. The finest are at Belur, Halebid, and Somnathpur. The temples have panels

carved with rows of elephants and depict stories from the Indian epics.

The Vijayanagar Empire controlled the Karnataka region from the 1300's until well into the 1500's. For a long time, the Vijayanagar Empire held back the expanding power of the Muslims. But in 1565, the Muslims defeated the forces of the Vijayanagar Empire at the Battle of Talikota and extinguished its power. Petty chieftains arose. Muslims held sway in the north. In the south, the Wadiyar dynasty, a Hindu royal family, ruled Mysore until the 1700's.

By the mid-1700's, the power of the Wadiyar dynasty was declining, and military commanders controlled the Mysore area of the Karnataka region. One of these was Hyder Ali, an able army officer who made his bid for power in 1761. He defeated rival chiefs and expanded his territory to nearby areas of southwestern India. Hyder Ali and his son and successor Tipu Sultan led fierce opposition to the British East India Company between 1761 and 1799. They fought four wars against the British. See *India, History of; Tipu Sultan*.

After the defeat and death of Tipu Sultan in 1799, the British restored part of his kingdom of Mysore to the Wadiyar dynasty and annexed the remainder. The Wadiyar dynasty ruled the state of Mysore until 1947. Under its administration, Mysore developed as a liberal and progressive state. In 1881, it became the first Indian state to set up an elected legislative assembly. In 1916, it became the first state in India to set up a university. It also introduced economic planning, family planning, and vocational education.

During the early 1900's, a democratic political movement opposed both traditional rule by native monarchs and the control of the area by British administrators. The movement was influenced by the nationalist movement that led to India's independence in 1947.

At the time of independence, Kannada-speaking peoples occupied parts of Mysore, Hyderabad, Bombay, and Madras. In 1956, these linguistic areas were brought together into one state, which took the name of Mysore. In 1973, the state was renamed Karnataka. The Congress Party has been the most influential political party in the region since independence.

In 1993, India's worst earthquake for 50 years struck Maharashtra, Karnataka, and Andhra Pradesh. The strongest shock measured 6.5 on the Richter scale. The quake killed 11,000 people.

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India, History of  
Maurya Empire

Srirangapatnam, Storming of  
Tipu Sultan  
Vijayanagar Empire

## Outline

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**Karoo** is a semidesert high-lying area in the upland regions of South Africa's Eastern Cape Province. The name comes from the Khoikhoi description of "hard and dry; land of thirst and small bushes."

The Karoo can be divided into two parts. They are the Little or Small Karoo and the Great Karoo. The Little Karoo is about 60 kilometres wide and 250 kilometres long. It lies between two mountain ranges called the Swartberg and the Langeberg. It is drained by several tributaries of the Gouritz River. The area has warm temperatures with little rain. More than 60,000 ostriches are kept there for commercial purposes.

The Great Karoo is the larger area north of the Swartberg. It is generally dry, because it lies in a rain shadow area (see *Rain shadow areas*). The town of Beaufort West receives from 150 to 300 millimetres of rain a year. A great variety of plants grow in the area. Farmers rear cattle and sheep. In some places overgrazing has caused soil erosion and flooding to become worse. The Karoo has South Africa's coldest temperatures. The town of Sutherland has an average July night time temperature of  $-6^{\circ}\text{C}$ . Sutherland also has the highest wind speeds. Windmills and isolated farms are characteristic of the region.

Geologically, the Karoo system of rocks consists of shales, sandstone, and mudstone. It is South Africa's largest geological system, and was deposited 150 to 250 million years ago. Both Karoos were traditionally inhabited by San and Khoikhoi peoples and vast herds of plains game.

**Karratha** (pop. 9,533) is the largest town in the Pilbara, an iron ore mining region in Western Australia. Karratha is connected by road with Perth, which is 1,535 kilometres to the south. It is also serviced by airlines.

Karratha has a large shopping centre, a hospital, a library, a performing arts centre, schools, and a postsecondary college. The town houses workers from the nearby port of Dampier as well as iron ore company employees and people engaged in administrative jobs and service industries in the surrounding district.

The name *Karratha* is an Aboriginal word meaning *good country*. The name was adopted by two pastoralists who settled in the district in 1866. Planning for the new town of Karratha began in 1968, when the lack of suitable land at Dampier made it apparent that a new town was needed. The development of a pipeline to bring natural gas ashore from the Northwest Shelf led to further growth of the town in the 1980's.

**Karri** is a type of eucalyptus tree that grows in Western Australia. It is one of the tallest hardwoods in the world, growing to a height of over 75 metres. The smooth, greyish-blue bark of the karri is often mottled with yellow and orange. Its straight stem branches high above the ground. Karri grow in deep, loamy soils in the 1,000- to 1,500-millimetres rainfall belt. Their leaves are small, light-green, and pointed.

Karri are important timber trees. Their wood is hard and tough. But it is only moderately durable when placed in contact with the ground, where it can be attacked by termites. Karri wood is used for building construction, industrial flooring, and structural plywood. It is also used for railway sleepers.

**Scientific classification.** The karri belongs to the myrtle family, Myrtaceae. It is *Eucalyptus diversicolor*.

**Karsh, Yousuf** (1908– ), a Canadian photographer, became famous for his portraits of leading international figures in politics, literature, and the arts. Karsh has a solemn photographic style in which light and shadow are placed in strong contrast for dramatic effect. His compositions are simple. He uses props and the natural expressions and gestures of his subjects to help reveal their personality.

Karsh's photographs have been widely published and are included in the collections of many museums. His best-known portraits include those of British Prime Minister Winston Churchill, United States President John F. Kennedy, and the famous German-born physicist Albert Einstein.

Karsh was born in Mardin, in Turkish Armenia. In 1924, he was taken to Canada by his uncle, who taught him about photography. Karsh later worked in Boston, Massachusetts, U.S.A., for a time as an apprentice to John Caro, a photographer noted for his portraiture. In 1932, Karsh opened his own studio in Ottawa, Canada. He became a Canadian citizen in 1946.

**Kartini, Raden Ajeng** (1879-1904), was one of the first women in Indonesia to campaign for more education, freedom, and independence for women. In particular, she wanted Indonesian students to have the right to a Western education. Her birthday, April 21, is observed as Kartini Day.

Kartini was born in Mayong, Java. She was one of several daughters of a Javanese aristocrat. Her father was a *bupati* (head of a region). This was the highest position an Indonesian could hold in the Dutch colonial bureaucracy. Her privileged position allowed her to attend a Dutch school, and she became fluent in Dutch. At the age of 12, she had to give up her formal education. Kartini withdrew into the seclusion of her home to prepare herself for marriage. She continued to educate herself, and read all the Dutch books she could find.

Kartini's education made her realize how much freedom Dutch women had. She knew Javanese women had little freedom by comparison, and campaigned for better treatment. Kartini started a school for little girls. She also struck up friendships with some of the more sympathetic Dutch people. From 1900, she kept up a lively correspondence with her Dutch friends. A selection of her letters was published in a book in 1911. It was later translated into English and published as *Letters of a Javanese Princess* (1921).

In 1903, she married a senior Javanese official. She died less than a year later, five days after the birth of her only child, a son. A Kartini fund was set up in her memory.

**Kashmir.** See Jammu and Kashmir.

**Katanga.** See Zaire (Civil disorder).

**Kathmandu** (pop. 235,160), also spelled *Katmandu*, is the capital and largest city of Nepal. It lies in a valley in central Nepal amid the Himalayan foothills. For the location of Kathmandu, see *Nepal* (map). The city is known for its many graceful Hindu and Buddhist temples. Kathmandu's main industry is tourism. Light industry in the city includes brick, carpet, and concrete manufacturing; and woodworking and metalworking.

Historians do not know when Kathmandu was founded, but the area has been inhabited for at least 2,600 years. The first known settlers were the Newars. In



**Kathmandu** lies among the soaring peaks of the Himalaya. *left*, Most of the city's population are Hindus. Outside a Hindu temple, *right*, people sell dyes for use in religious festivals



1768, the nearby kingdom of Gorkha conquered Kathmandu and united the region that became the modern kingdom of Nepal. Today, members of several ethnic groups live in Kathmandu. Most of the city's people are Hindus, but many are Buddhists.

**Katin, Peter** (1930– ), is a British pianist known especially for his interpretations of the works of Ludwig van Beethoven and Frédéric Chopin. Katin developed a sensitive style of playing in which his keen appreciation of musical form disciplined the emotional aspects of his performances. Katin was born in London and began to play the piano at the age of 4. He studied at the Royal Academy of Music and made his debut in 1948. Later, he made tours in Europe, Africa, and Turkey.

**Katoomba.** See Blue Mountains.

**Katydid** is a large green or brown insect with long antennae (feelers). It is a type of long-horned grasshopper. Its name comes from the love call of the male of a certain species in the Eastern United States. Katydids rub

the bases of their front wings together to make their sounds. Little filelike ridges on the wings form a sort of scraper. Many katydids begin their song at twilight and sing all night. Katydids are heard most often during the late summer and the autumn.

Most katydids are about 5 centimetres long. They have large wings that fold over their back. In some species, the threadlike antennae are longer than the body. Many katydids are shaped like leaves, and the veins in their wings look like the veins of leaves.

Most katydids live in trees and bushes, and feed on leaves and young twigs. Other katydids eat decaying vegetation and dead insects. A few katydids will capture and eat other insects. Katydids lay their flat, oval, slate-grey eggs from early autumn until frost appears. Many of them lay their eggs in double, overlapping rows on the edges of leaves and on twigs. The eggs hatch the following spring.

**Scientific classification.** Katydids belong to the family Tettigoniidae.

See also Grasshopper (picture: Narrow-winged katydid); Mormon cricket.

**Kauffmann, Angelica** (1741-1807), was a Swiss-born painter. She specialized in portraits and in scenes from Greek and Roman mythology and history.

Kauffmann was born in Chur, Switzerland. As a young woman she worked in Italy, where she gained a reputation as a portrait painter. In the 1700's, there was a demand for portraits of English men and women who visited Italy during their "Grand Tour" of Europe. In 1766, she travelled to England. There Kauffmann became a close friend of the artist Sir Joshua Reynolds. She joined him in his efforts to promote neoclassical painting, which emphasized themes from Greek and Roman culture.

In 1768, Kauffmann became a founding member of the Royal Academy of Arts in London. She worked with architect Robert Adam in decorating house interiors that used Greek and Roman themes and artistic styles.



The **katydid** is a type of grasshopper. A certain male species has a loud and shrill love call that sounds like "katydid-katydid" when it mates during the summer.



**Kaufman, George S.** (1889-1961), was an American playwright. He wrote more than 40 plays and musical comedies, nearly all of which were collaborations with other authors. Kaufman's best-known works are lively, satirical comedies.

Kaufman's first important collaborator was Marc Connelly. Kaufman wrote *Dulcey* (1921), his first hit comedy, with Connelly. Kaufman and Edna Ferber wrote two popular plays about the theatre, *The Royal Family* (1927) and *Stage Door* (1936). Kaufman, Morrie Ryskind, and Ira Gershwin shared the 1932 Pulitzer Prize for drama for their musical comedy *Of Thee I Sing* (1931).

Kaufman's favourite collaborator was Moss Hart. Perhaps their best-known play is *You Can't Take It with You* (1936), which won the 1937 Pulitzer Prize for drama. Their other comedies include *Once in a Lifetime* (1930) and *The Man Who Came to Dinner* (1939).

George Simon Kaufman was born in Pittsburgh, Pennsylvania. Kaufman also wrote a number of essays and film scripts, and was a leading stage director.

**Kaunas** (pop. 400,000) is the second largest city of Lithuania. Only Vilnius has more people. Kaunas is an industrial, educational, and cultural centre. For location, see Lithuania (map). Factories in Kaunas produce about a quarter of Lithuania's manufactured goods. The city's chief products include machine tools, paper, and textiles. Kaunas has schools of agriculture, engineering, medicine, and veterinary medicine. Cultural facilities include three theatres and several museums. Several buildings in the city date from the 1400's.

Kaunas was founded in the 1000's. It was a medieval trading centre and fortress. Kaunas served as the capital of Lithuania from 1919 to 1940. In 1940, the Soviet government forcibly made Lithuania part of the Soviet Union. In 1991, Lithuania broke away from the Soviet Union and became an independent nation again.

**Kaunda, Kenneth David** (1924- ), was president of Zambia from 1964 to 1991. In 1964, he led the movement that resulted in Zambia's independence from the United Kingdom and was elected president. He was reelected in 1968. In 1972, Kaunda's political organization, the United National Independence Party (UNIP), became Zambia's only legal political party. Kaunda was reelected in one-party elections in 1973, 1978, 1983, and 1988. Opposition political parties were legalized in 1990. The following year, Kaunda was defeated in a multiparty presidential election.

As president, Kaunda became known for his support of black majority rule in South Africa and in neighbouring Rhodesia, now called Zimbabwe (see Zimbabwe (History)). He also supported the construction of a railway from Zambia through Tanzania to the Indian Ocean. The railway transports Zambia's products to the sea for export. Zambia's economy declined greatly during Kaunda's administration, however. The economy depends heavily on mining, and Kaunda failed to

promote policies to increase the importance of other economic activities.

Kaunda was born in Lubwa, Zambia (then Northern Rhodesia). He gave up a teaching career to work for Zambian independence. He was imprisoned in 1955 and 1959 for his political activities.

See also Zambia (History).



**Kauri** is an evergreen cone-bearing tree that grows in New Zealand. It is a massive tree, growing up to 30 metres high.

**Kauri** is a magnificent pine tree that grows 25 to 30 metres high. The kauri sometimes grows 20 metres high without branching. It has ash-coloured bark that peels off in heavy flakes. The rather broad leaves grow without stalks. The leaves are reddish-brown when young, but turn a soft green. The kauri is a spreading tree with leafy branches. The timber is used for cabinet work. Kauri gum (resin) is used for ornaments. Sometimes insects or leaves become embedded in the resin before it hardens. Kauris grow in New Zealand. They were once common, but many have been felled or destroyed in bush fires.

**Scientific classification.** Kauri is a member of the family Araucariaceae. It is *Agathis australis*.

**Kaurna** were a group of about 300 Aborigines who inhabited the Adelaide Plains at the time British settlers arrived in South Australia in 1836. British colonization contributed to the collapse of the traditional culture and introduced many fatal diseases, particularly smallpox. By 1870, the Kaurna people had been wiped out.

The Kaurna's territory extended from Crystal Brook in the north to Cape Jervis in the south. They lived in family groups or clans. They hunted animals and gathered plants for food. Summer dwellings consisted of a few branches placed in a semicircle, facing away from the prevailing wind. Winter shelter was more substantial, with a cover of bark, earth, and grass over the branches.



**Kenneth Kaunda**

The Kaurna wore possum skins sewn together with sinew for protection against the cold weather. They used stone tools for making wooden and bone implements. They used spears, shields, and clubs for hunting and fighting. A *digging stick* was used to extract edible roots. They used a *climbing stick* to help them climb trees to search for possums or birds' nests.

Part of the cultural traditions of the Kaurna people included dreamtime stories. The most notable dreamtime story concerns the creation of the Fleurieu Peninsula by the mythical being called *Tjilbruke*.

**Kava** is the name of two shrubs related to the pepper plant. They are also called *ava*. They grow in Australia and the Pacific Islands, where the people have cultivated them for centuries. The kavas are erect shrubs. They grow as tall as 1.5 metres. They have round leaves and small yellowish-cream flowers. They are grown from cuttings from the stem. The roots yield a juice called *kavalic acid*. The peoples of the South Pacific use the juice to make a fermented drink that is called *kava*, *ava*, or *kavakava*. The dried roots of the plant are used as an antiseptic and as a *diuretic*, to increase the flow of urine.

**Scientific classification.** The kavas are in the pepper family, *Piperaceae*. The two species are *Piper methysticum* and *P. excelsum*.

**Kavanagh, Patrick** (1905-1967), was an Irish poet who drew on his experience of life in Ireland for much of his poetry. Kavanagh was born in Inniskeen, in Monaghan, and worked as a shoemaker and farm labourer. He later settled in Dublin and became a critic and journalist. He published his first collection of poems, *Ploughman and Other Poems*, in 1936. Many consider *A Soul for Sale* (1947) to be his finest work. His other works include *The Great Hunger* (1942) and *Come Dance with Kitty Stobling* (1960).

**Kawasaki disease** is a potentially serious illness of young children. A feverish condition, it may result in heart damage and lead to death. It has occurred worldwide but is most common in Japan. It is relatively rare in Western countries. Named after Tomisaku Kawasaki, who first described it in 1967, it is also known as *mucocutaneous lymph node syndrome*.

Many doctors believe that Kawasaki disease is caused by a virus. It is most common among boys between the ages of 18 months and 2 years and occurs primarily in the late winter and spring. Children of Oriental and Caribbean ancestry are most likely to get the disease. In addition, middle- and upper-class children are more likely than poor children to contract it.

The symptoms of Kawasaki disease include prolonged high fever; redness of the eyes; sore throat; red, cracked, and bleeding lips; swollen lymph nodes in the neck; a red rash covering the body; and swollen and red hands and feet. After the rash goes away, the skin peels, especially on the hands and feet.

About 20 per cent of the children with Kawasaki disease develop inflammation of the arteries that supply blood to the heart. This inflammation may cause weakness or scarring of the walls of the arteries. About 1 to 2 per cent of patients die from heart damage. Patients are given aspirin and disease-fighting proteins called *gamma globulins* to reduce the risk of heart damage.

**Kay, John** (1704?-1764?), invented the *flying shuttle*, a device that saved weavers' time and labour. Before his

invention, a weaver had to pass the shuttle through the threads on a loom by hand (see *Weaving*). Kay's flying shuttle was driven automatically through the threads by a hand-operated mechanism. With this shuttle, weavers doubled their output and the width of cloth they could make. Kay invented the flying shuttle in 1733, while working for a cloth manufacturer in Colchester, Essex, England. Kay was granted a patent for a power loom in 1745. Many workers feared the threat to employment that his inventions posed and drove him from Colchester back to his birthplace, Bury, in Greater Manchester. In Bury, a mob wrecked Kay's home, and dishonest manufacturers stole his patents.

**Kay-Shuttleworth, Sir James Phillips** (1804-1877), was a British educationalist who laid the foundations of the English educational system. After first-hand experience of the horrors of poverty in Manchester, he devoted his life to social reform. In 1839, he became secretary of a committee formed to consider "matters affecting the education of the people." During the next 10 years, he played a large part in organizing a system of elementary schools and a system of training for pupil teachers.

Kay-Shuttleworth was born at Rochdale, in Greater Manchester, and named James Phillips Kay. He later added his wife's surname to his own. He became a baronet in 1848.

**Kayak** is a light, narrow boat that looks somewhat like a canoe but has an enclosed deck. The deck has from one to four small openings, called *cockpits*, in which the kayakers sit. Each cockpit holds one person. A kayaker faces forward and uses a paddle that has a blade at each end. Kayaks ride low in the water. They have a waterproof flap that is attached to the cockpit. The flap fits tightly around the kayaker and keeps the water out.



Science Museum, London

John Kay



A kayak is a light, narrow boat. The kayaker sits in a small opening, called a cockpit, and uses a paddle that has a blade at each end. A waterproof flap keeps the cockpit dry.



Most kayaks measure from 4 to 5 metres long and from 60 to 85 centimetres wide. They generally weigh from 15 to 30 kilograms. The shape and weight of a kayak make it easy to manoeuvre. Most kayaks are made of fibreglass.

Inuit built the first kayaks thousands of years ago and used them for fishing and hunting. These early kayaks consisted of caribou skins or sealskins stretched over a wooden frame. Today, most kayaks are used for recreation or for racing, including events in the Olympic Games. One type of kayak race, called the *white-water slalom race*, is held in rivers that have rapids.

See also **Inuit** (Transportation; pictures).

**Kaye, Danny** (1913-1987),

an American comedian, became noted for his lively pantomimes and his command of ingenious songs. He was born David Daniel Kominski in Brooklyn, New York. Kaye made his stage debut in *The Straw Hat Revue* in 1939. His first stage hit was in 1940 in *Lady in the Dark*. Kaye made his film debut in *Up in Arms* in 1944. He played in *The Secret Life of Walter Mitty* (1947) and *Hans*



Danny Kaye

*Christian Andersen* (1952). Kaye toured the world on behalf of the United Nations Children's Fund in 1956.

**Kazakhstan** is a country in west-central Asia. It became an independent country in 1991, after about 70 years as a part of the Soviet Union under the leadership of Russia. Kazakhstan joined the Commonwealth of Independent States (C.I.S.), a loose association of former Soviet republics. The country's name in Kazakh, the official language, is Qazaqstan Respublikasy (Republic of Kazakhstan).

Kazakhstan covers 2,717,300 square kilometres. A small part of the country lies west of the Ural River on the European continent. For Kazakhstan's total population, see the *Facts in brief* table with this article. Most of the people are Kazakhs or Russians. Almaty, formerly Alma-Ata, is the country's capital and largest city.

For hundreds of years, the Kazakh people were wandering herders. They relied on their herds of sheep, camels, cattle, and horses for food, clothing, and transport. This life style changed in the 1800's, when the Russian Empire conquered the Kazakh region and Russians settled in the area. Industry grew rapidly in Kazakhstan during the 1900's, while the country was under Soviet rule. Under these influences, most of the Kazakh people ended their nomadic ways and settled.

**Government.** Kazakhstan has a parliamentary system of government. The parliament, a 177-member body called the Supreme *Kenges*, is the country's highest governing body. It enacts legislation and supervises government administration. A president serves as head of state. The president appoints a prime minister to head the government and a cabinet. The people elect both the president and the members of the Supreme *Kenges* to five-year terms. All citizens 18 years old or older may vote.

Kazakhstan is divided into 19 *oblasts* (provinces) for purposes of local government. The president appoints a governor to administer each oblast.

Under Soviet rule, the Communist Party was Kazakhstan's only political party until 1990. It controlled the government strictly. Since 1990, other political parties have been allowed to form and have gained influence in the country. In 1991, the Communist Party was renamed the Socialist Party of Kazakhstan. Other political parties now include the Alash, the Azat, the Lad Party, the National Congress, the Social Democratic Party, and the People's Unity Party.

Kazakhstan's highest court is the Supreme Court. Its judges are elected by the Supreme *Kenges* to 10-year terms. The country's other courts include regional courts and local courts.

Kazakhstan has two types of military units. The main unit, the Kazakh armed forces, has about 44,000 troops. There is also a small Kazakhstan National Guard.

The Soviet Union had put part of its arsenal of nuclear weapons in Kazakhstan. According to a treaty signed in May 1992 by Kazakhstan and the former Soviet republics of Belarus, Russia, and Ukraine, all nuclear weapons under the former republics' control are to be transferred to Russian control or destroyed within seven years. In March 1994, Kazakhstan and Russia signed an agreement turning operational control of Kazakhstan's nuclear weapons over to Russia.

**People.** Kazakhs make up about 42 per cent of Kazakhstan's population and Russians account for about 37 per cent. Germans and Ukrainians each make up about 5 per cent of the population. Other ethnic groups include Belarusians, Tatars, Uygurs, and Uzbeks. A majority of Kazakhstan's people, including the Kazakhs, Tatars, Uygurs, and Uzbeks, are Muslims. Most Russians and Belarusians are Orthodox Christians.

About 58 per cent of Kazakhstan's people live in urban areas and about 42 per cent live in rural areas. Most of the urban people dwell in modern apartments or



Almaty is the capital of Kazakhstan. It lies in a fertile valley at the foot of a mountain range called the Tian Shan. Broad, tree-lined streets run through the city.

houses. In the rural villages, most people live in houses. However, some Kazakh villagers still live in the traditional tentlike dwellings of their nomadic past, called *yurts*. These are constructed of a circular wooden frame covered with felt. Most of Kazakhstan's rural villages do not have electricity or running water.

The social life of the country's Kazakh people is centred on the family. Kazakh men and their children generally remain a part of their parents' households. Married women become part of the household of their husband's family. Kazakh women rarely work outside the home.

Kazakh weddings are festive celebrations. Before the wedding, the groom's family must offer a *kalym* (bride price) to the family of the bride. The two families argue over the amount of the *kalym*, which can be as large as several years' salary.

The Kazakh people wear both Western-style and traditional clothing. Women generally wear colourful hand-made dresses. Most Kazakh men wear Western-style clothing and a felt skullcap.

Common Kazakh foods include meat dishes and milk products, such as cheese and curds. *Besh barmak*, thinly sliced meat and noodles boiled in broth, is a popular dish. *Kumiss*, made from fermented mare's milk, is a traditional drink. Tea is also popular.

The Kazakh people enjoy folk songs and legends, and they recite them for many different occasions. At some events, Kazakhs participate in a singing competition called an *ayty*s. The recitation of *epics* (poems about heroic events) is another important part of Kazakh culture.

Most of Kazakhstan's Russian people live in cities. They wear Western-style clothing and follow Russian customs. The Russian population has maintained its own culture in Kazakhstan. Performances of Russian ballet, theatre, and music are put on in all the major cities.

Popular sports in Kazakhstan include volleyball, skating, and wrestling. *Kopkar* is a traditional Kazakh game in which dozens of skilled horsemen try to carry the carcass of a goat or sheep across a goal.

Russian was Kazakhstan's official language under Soviet rule. The Kazakh language replaced it in 1989. However, many Kazakhs, especially urban people, continue to speak Russian.

Nearly all of Kazakhstan's people can read and write. The government requires children to attend school be-



Central Kazakhstan includes grassy plains called *steppes*. A herd of sheep grazes on the steppes, above. Livestock farming is a major economic activity in Kazakhstan.

tween the ages of 6 and 17. Kazakhstan has 55 schools of higher learning, including Kazakh State University and Qaraghandy State University. The Kazakh Academy of Sciences includes more than 30 research institutes.

**Land and climate.** Kazakhstan's landscape varies greatly from west to east. In the west, the dry plains of the Caspian lowland border the Caspian Sea. The Karagiye Depression, the country's lowest point, lies near the Caspian Sea at 132 metres below sea level. Dry lowlands extend over much of western Kazakhstan and around the Aral Sea on the southwest border.

High, grassy plains called *steppes* cover large areas of northern Kazakhstan. Sandy deserts cover much of the south. Northeastern Kazakhstan consists of flat, highly elevated lands that are suitable for farming.

Mountain ranges, including the Tian Shan and the Altai Mountains, form Kazakhstan's eastern and southeastern borders. Mount Tengri, the country's highest point, rises 6,398 metres in the southeast. Several mountain rivers in the east feed into Lake Balkhash, the largest lake entirely within Kazakhstan. Major rivers include the Ili, the Irtysh, the Syr Darya, and the Ural.

Kazakhstan has extremely cold winters and long, hot summers. It receives little rainfall. January temperatures average about  $-18^{\circ}\text{C}$  in the north and about  $-5^{\circ}\text{C}$  in the south. July temperatures average about  $20^{\circ}\text{C}$  in the north and about  $27^{\circ}\text{C}$  in the south. Average annual rainfall totals only about 10 to 40 centimetres. Mountainous regions are colder, and receive more rainfall, than the rest of the country.

Animal life in Kazakhstan is varied. Larks, eagles, marmots, tortoises, and squirrels live in the steppes. Gazelles and a variety of rodents and reptiles inhabit the desert. Snow leopards and lynxes live in the mountains.

### Facts in brief about Kazakhstan

**Capital:** Almaty.

**Official language:** Kazakh.

**Area:** 2,717,300 km<sup>2</sup>. *Greatest distances*—north-south, 1,600 km; east-west, 2,900 km.

**Elevation:** *Highest*—Mt. Tengri, 6,398 m above sea level.

*Lowest*—Karagiye Depression, 132 m below sea level.

**Population:** *Estimated 1996 population*—17,575,000; density, 7 people per km<sup>2</sup>; *distribution*, 57 per cent urban, 43 per cent rural. *1989 census*—16,536,511. *Estimated 2001 population*—18,292,000.

**Chief products:** *Agriculture*—grain, meat, wool. *Manufacturing*—chemicals, food products, heavy machinery. *Mining*—Coal, copper, lead, natural gas, petroleum.

**Flag:** The flag is blue with a yellow sun and eagle in the centre and a yellow stripe of national ornamentation on the left. See Flag (picture: Flags of Asia and the Pacific).

**Money:** *Currency unit*—tenge. One tenge = 100 tiyn.



**Economy.** Agriculture accounts for about two-fifths of the value of Kazakhstan's economic production. Farmers raise sheep and cattle throughout Kazakhstan. Chief livestock products are dairy goods, meat, leather, and wool. The country's major crops include barley, cotton, rice, and wheat. Since the 1950's, Kazakhstan's crop production has increased sharply due to expansion of agricultural lands and the irrigation of dry lands.

Kazakhstan's industries, which include food processing, mining, and chemical, textile, and heavy machinery manufacturing, account for about one-third of the value of the country's economic production. Almaty, Shymkent, Pavlodar, and Qaraghandy are among the country's chief industrial centres. Russia and Ukraine are Kazakhstan's most important trading partners.

The mines of the region yield many valuable minerals, including bauxite, borax, chromium, gold, iron, lead, nickel, phosphate, silver, tin, tungsten, uranium, and zinc. Coal is mined in central, eastern, and northeastern Kazakhstan. Petroleum and natural gas come from fields near the Caspian Sea. Copper mines operate in central, northern, and eastern Kazakhstan.

Several rail lines connect Kazakhstan's cities to urban areas in Russia, China, and other neighbouring countries. Kazakhstan has a limited system of roads. Buses and trains are the most common forms of transport. An airport at Almaty handles all flights to Kazakhstan.

Newspapers in Kazakhstan are published in several languages, including Kazakh and Russian. A radio and a television station in Almaty broadcast in Kazakh, Russian, and several other local languages.

**History.** Nomadic people lived in what is now Kazakhstan before the birth of Christ. Turkish tribes began to settle in the region in the A.D. 500's. During the 1200's, Mongols from the east invaded the area and defeated the Turkish people. Many of the country's people are descended from the Turkish and Mongol tribes.

During the early 1700's, Russians began migrating to

the Kazakh region. In 1731, after suffering attacks from neighbouring peoples, the Kazakhs accepted Russian rule for protection. By the mid-1800's, the Russians had set up forts throughout the Kazakh area. The Russian government took control of vast areas of land and encouraged Russian and Ukrainian peasants to settle in the region. This greatly reduced Kazakh grazing lands.

A nationalist movement to gain independence from Russia emerged in Kazakhstan following the Russian Revolution of 1917. Kazakh nationalists set up a central government and sent troops to fight against the *Bolsheviks*, Communists who had seized power in Russia during the Russian Revolution. By late 1919, however, the Kazakh nationalists had sided with the Bolsheviks.

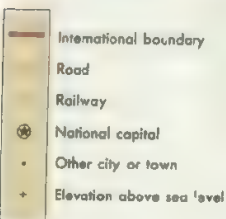
In 1920, the Communists set up Kazakhstan as an *autonomous* (self-governing) republic called the Kyrgyz Autonomous Soviet Socialist Republic. Kazakhstan was renamed the Kazakh Autonomous Soviet Socialist Republic in 1925. The Soviet Union had been formed in 1922 under Russia's leadership. Kazakhstan became a union republic of the Soviet Union in 1936. It was called the Kazakh Soviet Socialist Republic.

The Soviet Union established a Communist central government in Moscow and took control of all industry and land in Kazakhstan and the other republics. The Communist Party became the only legal political party. Soviet law forbade certain traditional cultural practices, such as religious instruction.

During World War II (1939-1945), the Soviet government forced many people from the western part of the Soviet Union to move to Kazakhstan. These people included Chechens, Germans, Tatars, and Ukrainians.

In the 1950's, the Soviet government launched a programme to expand the use of Kazakhstan's steppes for agriculture by planting it with grain. This programme, called the *Virgin Lands* project, brought thousands of people from other parts of the Soviet Union to Kazakhstan.

## Kazakhstan





The kea of New Zealand has a powerful, hooked bill.

During the 1980's, the Soviet government, under Mikhail Gorbachev, made reforms toward giving people more freedom. In 1991, Nursultan Nazarbayev became the first democratically elected president in the history of the Kazakh people. On December 16, Kazakhstan declared its independence. Kazakhstan then sought to replace its government-controlled economy with a free enterprise system. It replaced its Communist government system with one based on democracy.

In 1994, Kazakhstan replaced its Supreme Soviet with a new 177-seat parliament. The Congress of People's Unity of Kazakhstan (SNEK), supporting President Nazarbayev, emerged as the biggest political party in the 1994 general election. However, independent observers reported many instances of electoral fraud.

See also **Almaty**; **Aral Sea**; **Caspian Sea**; **Commonwealth of Independent States**.

**Kazan** (pop. 1,039,000) is the capital of the Tatar republic, which is part of Russia. Kazan lies on the Volga River, about 800 kilometres east of Moscow. For location, see **Russia** (political map). Kazan is a manufacturing and commercial city. It is a centre of culture for the Tatars, or Tartars, who founded Kazan in the 1400's. Ivan the Terrible, first czar of Russia, captured the city in 1552.

See also **Tatars**.

**Kazan, Ella** (1909- ), became one of America's best-known stage and screen directors. He began directing for the theatre in 1940, and staged plays by Thornton Wilder, Arthur Miller, Tennessee Williams, and Robert Anderson. He began his film career in 1944. He directed films that attracted large audiences and won praise from critics. Kazan received Academy Awards for his direction of *Gentleman's Agreement* (1947) and *On the Waterfront* (1954). His other films include *A Tree Grows in Brooklyn* (1945), *A Streetcar Named Desire* (1951), *East of Eden* (1955), and *The Visitors* (1972). Kazan was born in Istanbul, Turkey, to Greek and Turkish parents.

**Kazantzakis, Nikos** (1883-1957), was a Greek novelist, dramatist, poet, and philosopher. In his epic poem, *The Odyssey: A Modern Sequel* (1938), Kazantzakis continued the story of Odysseus (Ulysses in Latin) where the ancient Greek epic poem the *Odyssey* left off. Kazantza-

ki's novels include *Zorba the Greek* (1946), *The Greek Passion* (1951), and *The Last Temptation of Christ* (1951). Kazantzakis was born in Iraklion (Candia), Crete.

**Koa** is a parrot that lives in New Zealand. It is also called the *mountain nester*. Its colours are dull olive-green with red under the wings. The koa spends its summers in the mountains and its winters in the lowlands. It feeds on insects, fruit, and the carcasses of sheep and deer. It is also known to attack lambs and sick sheep to get at the thick layer of fat around the kidneys. Around human settlements, it may eat almost anything. It often walks on the ground.

See also **Parrot**.

**Scientific classification.** The koa belongs to the parrot family, *Psittacidae*. It is *Nestor notabilis*.

**Kean, Edmund** (1787-1843) was considered the greatest and most influential British actor of his time. He was the first important performer to reject the established polite, restrained style of acting. He introduced a more romantic and exuberant method that became the acting ideal for most of the 1800's. Kean first gained fame for his acting style as Shylock in William Shakespeare's *The Merchant of Venice* in 1814. He became best known for his portrayal of such Shakespearean characters as Hamlet, Iago, Othello, and especially Richard III. The poet and critic Samuel Taylor Coleridge wrote that watching Kean act was like reading Shakespeare by "flashes of lightning." Kean was born in London.

**Keating, Geoffrey** (1570?-1644?), an Irish historian and poet, was one of the greatest writers of classical Irish prose. His work was based on earlier writings that are now lost. Many valuable facts and legends have been preserved in his history *Forus Feasa ar Éirinn* (*Basic Knowledge of Ireland*). It is the first history of Ireland written in narrative form, and covers the period from the earliest times to the Norman invasion. He also wrote poetry. Keating was born in Tipperary and educated in France and Spain. In 1610, after being ordained as a priest, he took a living in the diocese of Lismore. He was forced to flee to the Glen of Aherlow, in Tipperary.

**Keating, Paul** (1944- ), became prime minister of Australia in December 1991. He replaced Bob Hawke as leader of the Labor Party and prime minister after winning his second challenge to Hawke's leadership. Keating set a target date of 2001 for Australia to become a republic, with a local president replacing Queen Elizabeth II as Australia's head of state (see Elizabeth II).

Paul John Keating was born and educated in Banksstown, a suburb of western Sydney. In 1969, Keating was elected to Parliament

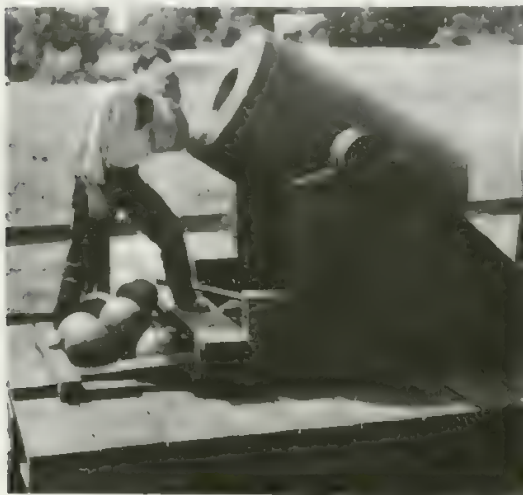
as member for Blaxland. From 1979 to 1983, he was president of the New South Wales Labor Party. After the Labor victory in 1983, Keating became treasurer and helped to reshape Australia's banking and financial system. He was deputy prime minister from April 1990 until June 1991. Labor won elections in 1993 and Keating retained the premiership.



Paul Keating



**Keaton, Buster** (1895-1966), was an American film actor. He ranked among the most popular silent film comedians, along with Charlie Chaplin and Harold Lloyd. Keaton created a character, sometimes called "The Great Stone Face," who rarely smiled but overcame obstacles through a naive determination and mechanical ingenuity. Keaton's major silent films include *Sherlock, Jr.*



**Buster Keaton** played an unsmiling character who always won through despite great odds. One of his greatest silent film comedies was *The General* (1927), set against a background of the American Civil War.

(1924), *The Navigator* (1924), and *The General* (1927). With the arrival of talking pictures, Keaton's career went into decline. He began to appear in films and on television again shortly before his death.

Keaton was born in Piqua, Kansas. His real name was Joseph Frank Keaton.

**Keats, John** (1795-1821), was a British poet of the romantic period. Keats's poetry is concerned, in various ways, with joy in the beauty of this world, sorrow over its inevitable passing, and attempts to find bridges between the perishable world we know and the eternal world we imagine. His verse employs unusually rich and vivid images to express his intense feelings.

**His life.** Keats was born in London on Oct. 31, 1795, the son of a livery stable keeper. He attended the Clarke school in Enfield, outside London, and his interest in literature was first aroused there. Keats later studied medicine and passed his medical examinations, but he never practised as a doctor because he had decided to become a poet and writer. He dedicated his first volume, *Poems* (1817), to his friend Leigh Hunt. Hunt was a journalist, essayist, and poet who held liberal political views. In 1818, Keats published his sec-



Charcoal sketch by Joseph Severn: Victoria and Albert Museum, London

**John Keats**

ond volume, *Endymion*, a long mythological story in verse. The reviewers for the powerful Tory journals, always eager to attack Hunt or his friends, ridiculed *Endymion*. The reviewers sneeringly assigned Keats to the "Cockney School of Poetry."

The reviews ruined Keats's reputation and even gave rise to the story that the young poet was literally killed by the hostile reception of his works. Shelley echoed this point in his elegy *Adonais*. Adding to Keats's disappointment in 1818 were the death of his brother from tuberculosis and Keats's premonition that he himself would suffer the same fate. Keats began to develop an increasing feeling that poverty and disease would prevent his marrying Fanny Brawne, whom he deeply loved. Yet from the autumn of 1818 until the autumn of 1819, Keats experienced an intense burst of creativity, and his final and best volume was published in 1820. But Keats had developed tuberculosis. He travelled to Italy, hoping a warmer climate might improve his health. But it was too late. He died in Rome and was buried there, beneath a stone that bore the bitter inscription he had requested: "Here lies one whose name was writ in water."

**His work.** Keats's early poetry was uneven. It showed the influence of Edmund Spenser and William Shakespeare, but it lacked the consistency these poets displayed. In his 1817 volume, perhaps the only poem of mature stature was the sonnet of excited literary discovery, "On First Looking into Chapman's Homer."

In *Endymion*, Keats retold the classic story of the shepherd who loved and won the goddess of the moon. *Endymion* opens with the famous line, "A thing of beauty is a joy forever."

In the poetry of his final volume, Keats achieved the rich beauty and superb control of image, story, and language that has earned him lasting fame. "The Eve of St. Agnes" uses brilliant contrasts to tell a Romeo and Juliet-like tale of dangerous young love. The poem explores Keats's favourite theme of the relationship between dreams and the everyday world. "Lamia" shows a young man entranced by love for a beautiful serpent-woman, and raises questions about the nature of reality. The unfinished "Hyperion" shows the influence of the English poet John Milton. The style of its companion fragment, "The Fall of Hyperion," was also somewhat influenced by that of the Italian poet Dante. Together, they deal on a grand scale with the wars of the ancient gods and the principle of power in the universe. The great odes "On a Grecian Urn," "To a Nightingale," "On Melancholy," and "To Autumn" present various aspects of the soul's eternal longing in a world ruled by time. Critics still disagree about what Keats meant at the end of the Grecian Urn ode, where he interprets the message of the urn to be "Beauty is truth, truth beauty."

**Keble, John** (1792-1866), was a British scholar, poet, and clergyman. He was a leader of the Oxford Movement, also known as the Tractarians, in the 1830's (see Tractarians). Keble sought to defend the doctrines and authority of the Church of England at a time when these things seemed to be threatened by reform movements, by liberal theology, and by the Catholic Emancipation Act (1829). With colleagues at Oxford University, including John Henry Newman and Edward Pusey, Keble published a number of *Tracts for the Times*, which sought to revitalize the teaching of the Church.

Keble was born at Fairford, in Gloucestershire, England, and became a fellow of Oriel College, Oxford, at the age of 19. He was professor of poetry at Oxford for 10 years. Keble College, Oxford, was founded as a memorial to him in 1870.

**Kedah** is a state in northwest Peninsular Malaysia. It lies on the border with Thailand. The state includes the Langkawi Islands, a small group lying off the coast of Perlis. The state capital is Alor Setar.

**People and government.** Over 71 per cent of the population of Kedah are Malay. About 18 per cent are Chinese and nearly 8 per cent are Indian.

Kedah's head of state is a hereditary ruler known as a *sultan*. The state assembly has 28 seats.

**Economy.** Most of the people work in agriculture. The main crop is rice and the state is the major rice producer of the Malay peninsula. The Muda Irrigation scheme, covering over 125,000 hectares, supplies water for about 90 per cent of Kedah's rice farmers.

There are large rubber plantations in the central and southern parts of the state. Some of the people in coastal towns and villages gain their living from fishing. Industrial estates have been established in the western part of the state and manufacturing and processing plants have been built there. The milling of rice remains an important source of employment.

Tourism is increasingly important, especially on the Langkawi Islands, which have some beautiful scenery.

**Land.** Most of Kedah is a broad, highly fertile plain. This is the principal area of rice cultivation on the peninsula. The construction of modern irrigation has greatly increased rice production. The low Singgora Range of hills marks Kedah's border with Perak. A number of rivers, including the Kedah, the Merbok, and the Muda, rise in Singgora Range, to flow through the Kedah plain to the Strait of Malacca. There are major outcrops of limestone in northern Kedah and in the Langkawi Islands. In a number of places, rainwater has dissolved the limestone to create large caves.

**History.** From the earliest times, Kedah was an important centre for settlement and trade because of its geographical position. The state contains Stone Age sites, and has important Hindu and Buddhist remains.

The region was part of the great Sumatran empire of Srivijaya. With the decline of Srivijaya in the 1200's, Kedah came under the influence of the Thais, who ad-



The flag of Kedah displays the emblem of the state on a red background. The emblem, right, features a shield, the crescent of Islam, and a wreath of rice, the state's chief product.



### Facts in brief about Kedah

**Population:** 1991 census—1,304,800.

**Area:** 9,426 km<sup>2</sup>.

**Capital:** Alor Setar.

**Largest towns:** Alor Setar, Sungai Petani.

**Chief products:** Agriculture—rice, rubber.

vanced from the north. The rise of Melaka in the 1400's led to a Thai retreat. Kedah became an Islamic state.

During the 1500's and 1600's, the Acehnese from Sumatra and the Bugis from Sulawesi (Celebes) frequently raided Kedah. The Portuguese also attacked Kedah. In 1786, the Thais ceded Penang to the British East India Company (see Penang). In 1821, Thai forces again attacked the region. Kedah remained under the control of the Thais during the 1800's. In 1909, through an Anglo-Thai agreement, it came under British authority.

Although there was a British adviser from 1909, the local rulers remained largely independent during the colonial period. Following the Japanese attack on the peninsula in 1941, Kedah was handed back to Thailand. With the defeat of the Japanese in 1945, the state again came under British authority. In 1948, Kedah became part of the Federation of Malaya.

See also Malaysia; Srivijaya.

### Places to visit

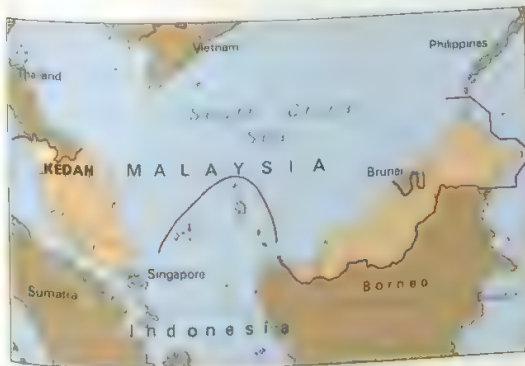
Following are brief descriptions of some of the interesting places to visit in Kedah.

**Alor Setar**, the state capital, is of great historical and architectural interest. Notable buildings include the *Balai Besar* (Hall of Audience), in which the Sultan of Kedah holds audience on ceremonial occasions; the *Balai Nobat*, which houses the royal orchestra; and the *Zahir Mosque*.

**Bujang Valley Historical Park**, in the southwest corner of the state, is the site of the oldest Hindu settlement on the Malay peninsula. The largest temple, *Candi Bukit Batu Pahat* (The Temple of the Hill of Chiselled Stone), dates from the A.D. 800's. There are a large number of other Hindu and Buddhist remains on this site.

**Kuala Kedah** the port town near Alor Setar, has the remains of a fort, which was the scene of a major Thai attack in 1821.

**Langkawi Islands** have been developed as a major tourist resort. This group of islands offers beautiful scenery.



**Kedah**, a state in northwest Peninsular Malaysia, is on the border with Thailand.

**Keelboat.** See Flatboat.

**Keepit Dam** blocks the Namoi River west of the Dividing Range in Australia. It stands near Tamworth in northern New South Wales. This rockfill gravity dam is 55 metres high from the lowest point in the general foundation to the crest. The length of the crest is 533 metres. The dam stores more than 425 million cubic metres of water. A hydroelectric power station, completed in



1960, supplies local electricity. The Keepit Dam controls the Namoi Valley's domestic, stock, and town water supply. It also supplies irrigation water for the Wee Waa cotton plantations.

**Keeshond** is a Dutch dog of Arctic descent, related to the Samoyed, Chow chow, and Pomeranian. It is the national dog of the Netherlands. Keeshonden are a familiar sight on Rhine River boats. The keeshond has long, thick, grey hair tipped with black. The eyes of the keeshond are slanting and are marked with lines that look like spectacles. The dog's head is wedge-shaped, and its tail curls tightly. Keeshonden stand 43 to 48 centimetres high. They weigh 16 to 18 kilograms. See also **Dog** (picture: Nonsporting dogs).

**Keher, Eddie** (1941- ), was an outstanding Irish hurling player. When he retired from intercounty play in 1977, Keher held the top four places in the records for individual scoring feats in All-Ireland Finals. He won All-Ireland medals in 1963, 1967, 1969, 1972, 1974, and 1975. Keher was born at Inistioge, County Kilkenny, and educated at St. Kieran's College, Kilkenny. He went into banking.

See also **Gaelic games**.

**Keighley**. See **Bradford**.

**Keitel, Wilhelm** (1882-1946), served as chief of the German supreme command in World War II (1939-1945). He signed the armistice between Germany and France in 1940 and signed Germany's surrender to the Allies in Berlin on May 9, 1945. From the time he became head of the German armed forces in 1938 to the war's end, he tried to carry out to the letter the military aspects of Adolf Hitler's aggressions. Keitel was tried for war crimes and executed in Nuremberg.

**Keith, Sir Arthur** (1866-1955), was a British anatomist and anthropologist. His major work consisted of the interpretation of the various fossil remains of early human beings and their bearing on human evolution. Among his writings in anthropology are *The Antiquity of Man* (enlarged edition, 1925), *Concerning Man's Origin* (1927), *Essays on Human Evolution* (1946), and *A New Theory of Evolution* (1948). Keith was born in Aberdeen, Scotland.

**Kekkonen, Urho Kaleva** (1900-1986), served as president of Finland from 1956 to 1981. Many people believe that his policies helped keep Finland from becoming Communist. Kekkonen stressed neutrality in the Cold War and cooperation with both the Soviet Union and the West. Under him, Finland became an associate member of the European Free Trade Association (EFTA). He also called for a European security conference that would guarantee a lessening of European tensions.

Kekkonen was born in Pielavesi, near Kuopio, and received a law degree from the University of Helsinki.

See also **Finland** (Postwar developments; Finland today).

**Kelantan** is a state in the northeast of Peninsular Malaysia. It is bounded by the states of Perak to the west,



The flag of Kelantan displays part of the state emblem on a red background. The emblem, right, features spears, *keris* (Malay daggers), cannons, and the star and crescent of Islam.



Pahang to the south, and Terengganu to the east. To the north are Thailand and the South China Sea.

**People and government.** Nearly 93 per cent of the population of Kelantan are Malay. Six per cent are Chinese and less than one per cent are Indian. Most people live in the plain and delta of the Kelantan River. Large areas of the state, especially the mountainous borders, are uninhabited, except for dwindling groups of *orang asli* (the Malaysian aborigines).

The head of state of Kelantan is a hereditary ruler known as a *sultan*. The state assembly has 39 seats. See also **Malaysia, Government of**.

**Economy.** The single most important source of employment is agriculture. The principal crops are rubber and rice. More than 50,000 hectares are under rubber, of which nearly 60 per cent are in smallholdings and the rest in large plantations. Rice covers more than 22,000 hectares. Other important crops are coconuts, oil palm, and tobacco.

Many people work in traditional industries, particularly the production of engraved and filigree silverware, woodcarvings, and hand-printed *batik* cloth (see **Batik**). On the northern coast of the state, many communities earn their living from fishing.

**Land.** Mountain ranges mark borders to the west, south, and east. The highest mountain in western Malaysia, Gunung Tahan (2,187 metres), is on the southern border of Kelantan. Until the construction of a main road linked the area with the east-west Highway in the 1980s, the mountain barriers limited Kelantan's contact with the economically more advanced states on the west of the peninsula. The railway from Pasir Mas heads south to-



**Kelantan** is a state in the northeast of Peninsular Malaysia. Rice and rubber are its chief products.

## Facts in brief about Kelantan

**Population:** 1991 census—1,161,880.

**Area:** 14,943 km<sup>2</sup>

**Largest cities:** Kota Bharu, Kuala Krai.

**Chief products:** *Agriculture*—coconuts, palm oil, rice, rubber, tobacco. *Manufacturing*—silverware, textiles, woodcarving.

ward Johor Bahru rather than cutting west to link Kelantan directly with Kuala Lumpur or the other major centres in the region.

The Kelantan River is joined by a number of minor rivers from the mountains as it flows northward to the South China Sea. The river flows through the Kelantan plain and delta, a major rice-growing region.

**History.** There has been human settlement in Kelantan since prehistoric times. Archaeologists have found prehistoric remains in the interior, especially in the caves above Gua Musang. The mouth of the Kelantan River has been an important political and trade centre for at least 1,000 years. In the 1400s, the region converted to Islam under the influence of the powerful state of Melaka. At the beginning of the 1500s, Kelantan began a long period of independence and prosperity, based upon trade in forest products, gold, pepper, rice, and tin. In this period, Kelantan was involved in a fluctuating power struggle with its northern and southern neighbours, Patani and Terengganu. In the early 1800s it became a tributary state of the Thai kingdom. Thailand abandoned all claims over the state in 1909, and the state became a British colony. During the colonial period, Kelantan remained isolated and economic development was slow.

In December 1941, Japanese troops landed at Kota Bharu to sweep down the peninsula towards Singapore. During their occupation (1941-1945), the Japanese returned Kelantan to Thailand. With the defeat of Japan, the state once again came under British authority. In 1948, Kelantan became part of the Federation of Malaya. On Aug. 31, 1957, the Federation of Malaya became independent from British rule.

See also *Malaysia*.

## Places to visit

Following are brief descriptions of some of the interesting places to visit in Kelantan:

**Kota Bharu** has a fine royal palace and state mosque, colourful markets, and many silversmiths and other craft workers. There are a number of traditional pastimes which tourists can still watch, including *wau* (kite-flying), *gasing* (top-spinning) and *wayang kulit* (shadow puppet play).

**Northern coast** has long stretches of virtually unspoilt beaches.

**Keller, Gottfried** (1819-1890), was the most famous Swiss author who wrote in German before the 1900s. He is noted for his humour and a concern for the ethics of good citizenship. Keller wrote several cycles of shorter prose works called novellas. His best-known novellas appear in two series of *The People of Seldwyla* (1856, 1874). They are the comic "Clothes Make the Man" and the tragic "Romeo and Juliet in the Village." Other important series include *Seven Legends* (1872), humorously modernized versions of popular religious tales; the his-

torical *Zurich Novellas* (1878); *The Epigram* (1882), a collection of ironic love stories; and *Martin Salander* (1886), about Swiss provincial life. Keller was born in Zurich.

**Keller, Helen Adams** (1880-1968), was an American author and campaigner for handicapped people. She is an outstanding example of a person who conquered physical handicaps. She was born in Tuscumbia, Alabama. A serious illness destroyed her sight and hearing by the time she was about 2 years old. Because of this, she was unable to speak and was entirely shut off from the world. But she rose above her disabilities to become internationally famous and to help handicapped people to live fuller lives.

For almost five years, she grew up, as she later said, "wild and unruly". Then Helen's father took her to the famous scientist Dr. Alexander Graham Bell. He advised Keller to write to the Perkins Institution for the Blind in Boston, Massachusetts. Shortly before the child was 7, Anne Sullivan arrived from Boston to teach her. Sullivan herself had been nearly blind during childhood, but surgery in 1881 and 1887 partially restored her sight. She remained with Helen Keller until her death. Then Mary Agnes "Polly" Thomson, who had been Miss Keller's secretary, took over.

**She learns to write.** Anne Sullivan was able to make contact with the girl's mind through the sense of touch. She used a manual alphabet by which she spelled out words on Helen's hand. Gradually, the child was able to connect words with objects. Once she understood, her progress was rapid. Within three years, she knew the alphabet and could read and write in Braille.

**She learns to speak.** Until she was 10 years old, Helen Keller could talk only with the sign language of the deaf-mute. She decided she would learn to speak and took lessons from a teacher of the deaf. By the time



**Helen Keller, left**, "listened" to others speak by putting her middle finger on the speaker's nose, forefinger on the lips, and thumb on the larynx. With Anne Sullivan, *centre*, she demonstrated the method for the American actor Joseph Jefferson.



she was 16, she could communicate well enough to go to a private secondary school and to college. She chose Radcliffe, at Cambridge, Massachusetts, from which she graduated in 1904 with honours. Anne Sullivan stayed with her through these years, interpreting lectures and class discussions for her.

**She helps others.** After college, Helen Keller became concerned with the conditions of the blind and the deaf-blind. She became active on the staffs of the American Foundation for the Blind and of the American Foundation for Overseas Blind. She appeared before legislatures, gave lectures, and wrote many books and articles. She started the Helen Keller Endowment Fund and asked for funds from wealthy people.

In later years, Helen Keller became especially interested in bettering conditions for the blind in developing and war-ravaged countries. An enthusiastic and untiring traveller, she lectured on their behalf in more than 25 countries on the five major continents. During World War II (1939-1945), Helen Keller worked with soldiers who had been blinded in the war. Whenever she appeared, Helen Keller brought new courage to blind people.

Helen Keller received many awards of great distinction. Her books have been translated into more than 50 languages. They include *The Story of My Life* (1903); *Optimism* (1903); *The World I Live In* (1908); *The Song of the Stone Wall* (1910); *Out of the Dark* (1913); *My Religion* (1929); and *Midstream: My Later Life* (1930). *Teacher* (1955) tells of Anne Sullivan. The film *Helen Keller in Her Story* told the story of her life.

**Kellogg, Frank Billings** (1856-1937), was an American lawyer, diplomat, and statesman. He won the 1929 Nobel Peace Prize for his work in framing the Kellogg-Briand Peace Pact of 1928. In 1930, he was appointed a judge of the Permanent Court of International Justice.

Kellogg was born in Potsdam, New York. He had little formal education but read law and was admitted to the bar in 1877. He prosecuted business trusts, especially the oil, railway, and paper monopolies.

See also Kellogg-Briand Peace Pact; International Court of Justice.

**Kellogg, W. K.** (1860-1951), an American cereal manufacturer, became known as "king of the corn flakes." Will Keith Kellogg spent the first half of his life in obscurity. As head of a cereal company organized in 1906, he became one of the master salesmen and merchandisers of his time, and made a large fortune.

Kellogg disliked being called a philanthropist, but he invested nearly all his fortune, worth some 50 million U.S. dollars, in "helpful endeavours." In 1930, he established the Kellogg Foundation.

**Kellogg-Briand Peace Pact**, also called Pact of Paris, condemned the use of war to solve international problems, and called for peaceful settlement of disputes. French Foreign Minister Aristide Briand originally

proposed the pact in 1927 as a treaty between France and the United States. Frank B. Kellogg, the U.S. secretary of state, enlarged the plan in 1928 to include all nations. It was signed by 15 nations in Paris on Aug. 27, 1928. By 1934, 64 nations had signed the pact. These included all of the nations at that time except Argentina, Bolivia, El Salvador, Uruguay, and the tiny countries of Andorra, Liechtenstein, Monaco, and San Marino.

Many nations signed the pact with certain limitations. For example, most reserved the right to wage war in self-defence. The pact provided no method to enforce its provisions, and it could not prevent attacks. Although the pact has been violated on many occasions, it has never officially been called off. After World War II, the Allies used the pact against individuals, rather than against nations. The pact became part of the legal basis for the Nuremberg and Tokyo war crimes trials.

See also International law (After World War I).

**Kells, Book of.** See Book of Kells.

See also Celtic art (Ornamentation).

**Kelly, Gene** (1912- ), became a popular American dancer, choreographer (dance creator), actor, and director. He ranks as one of the finest and most creative dancers in musical films. Kelly developed a spontaneous, athletic dancing style. His imaginative choreography combines tap dancing with elements of ballet and acrobatics. Eugene Curran Kelly was born in Pittsburgh, Pennsylvania. He made his Broadway debut in 1938 in the chorus of *Leave It to Me* and gained his first recognition in the title role of the musical *Pal Joey* in 1940.

Kelly made his film debut in *For Me and My Gal* (1942) and appeared in over 30 musicals and dramatic films. He also choreographed or co-choreographed many of his musicals, including *Cover Girl* (1944), *Anchors Aweigh*



Helen Keller



Gene Kelly, right, won fame for his imaginative, energetic dancing style. He is shown above dancing with Frank Sinatra, in a scene from the musical film *Anchors Aweigh* (1945).

(1945), *The Pirate* (1948), *On the Town* (1949), *An American in Paris* (1951), and *Singin' in the Rain* (1952).

**Kelly, Sir Gerald** (1879-1972), a British art expert, was president of the Royal Academy of Arts from 1949 to 1954. His great love and understanding of art made him a popular speaker on television and in lecture halls. Gerald Festus Kelly was born in London and educated at Eton College and Cambridge. He studied art in Paris. He was elected to the Royal Academy in 1922 and was knighted in 1945.

**Kelly, Grace** (1929-1982), Princess Grace of Monaco, was a famous American film actress before she married Prince Rainier III of Monaco in 1956 (see Rainier III). She died after a car accident near Monaco.



Grace Kelly

Grace Patricia Kelly was born in Philadelphia, Pennsylvania. She made her screen debut in 1951 in *Fourteen Hours*. Her first starring role was in *High Noon* (1952). In 1954, she won the Academy Award as best actress for her performance in *The Country Girl*. She made 11 films before retiring to marry Prince Rainier, including *Mogambo* (1953), *The Bridges at Toko-Ri* (1954), *Rear Window* (1954), *Dial M for Murder* (1954), *To Catch a Thief* (1955), and *High Society* (1956).

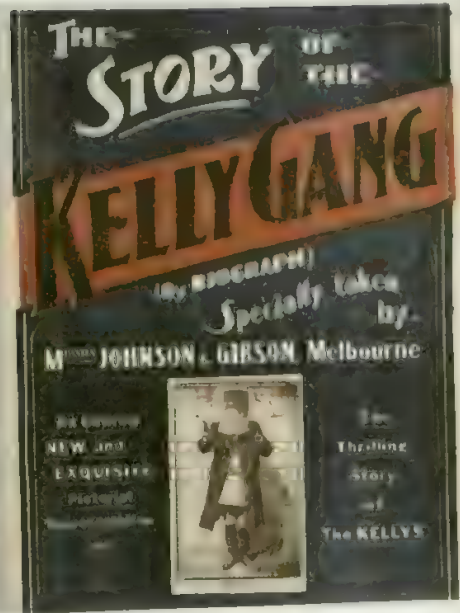
**Kelly, Michael** (1762-1826), was an Irish tenor who gained success in Vienna, partly through his friendship with Mozart. He sang in the first performance of Mozart's opera *The Marriage of Figaro* in 1786. From 1787, he won fame in London for his performances at Drury Lane Theatre. He also composed some theatre music.

Born in Dublin, Kelly later often performed there. He toured Italy before going to Vienna in 1783.

**Kelly, Ned** (1855-1880), was the most notorious of Australia's *bushrangers* (outlaws). During his lifetime and for a long time afterward, some people regarded Kelly as a cruel and vicious criminal. Other people, particularly those who were poor and underprivileged, thought of him as a hero. They argued that many of the laws of the time were unjust and that Ned Kelly became a symbol of revolt against those laws and their enforcers, the police, and the judges.

**Early life.** Ned Kelly was born at Beveridge in Victoria, the third child and first son of John "Red" Kelly, an ex-convict from Van Diemen's Land (now Tasmania). In 1860, the Kelly family moved to Avenel, where Ned attended school. In 1866, John Kelly died. Ellen Kelly and her children moved to Lurg, near Benalla, in northeastern Victoria. They settled on an 8-hectare farm. A widow with seven children, Ellen Kelly found life difficult.

Ned Kelly's relatives, the Quinns and the Lloyds, had been in constant conflict with the police since 1856. Ned grew up in an atmosphere in which the police were often seen as the enemy. Arrested in 1870 and charged with assault, Kelly was found guilty and sentenced to six months in prison. Three weeks after his release in 1871, he was again arrested, and was imprisoned for receiving a stolen horse. The arrest was made with consider-



Ned Kelly has been the subject of many films made in Australia. The bushranger has also been celebrated as a folk hero in ballads, plays, and paintings.

able brutality. The arresting constable pistol-whipped the 16-year-old Kelly, and there is little doubt that this incident shaped his attitude toward the police.

In 1874, Ned Kelly was released from prison. He settled down to a law-abiding existence until 1876, when he turned to stock theft.

**Kelly's times.** In rural areas, the period of the 1870's was a time of economic recession. During the 1860's and 1870's, the government had attempted to settle a large number of farmers, known as *selectors*, on the land in Victoria. Selection, however, was not the success the government had hoped it would be. The selectors met fierce opposition from the *squatters*, men who ran large numbers of stock on large stations. The selectors did not consider stealing stock from squatters to be a major crime.

**Outlawed.** In April 1878, Kelly shot and wounded a policeman, Trooper Fitzpatrick, who was trying to arrest his brother, Dan, for stock theft. The police arrested Ellen Kelly and two neighbours, charging them with attempted murder. Ned and Dan Kelly had already escaped to the bush. Although Fitzpatrick's story of the incident is now generally conceded to be false, Ellen Kelly and her two companions were sentenced to several years in prison. Ned Kelly protested that his mother had been unfairly convicted. He offered to surrender himself and Dan if she were released. The government replied by offering a reward for the brothers. In a subsequent gun battle, three of a police party of four were shot dead. The government declared the four men outlaws and offered a reward of 500 pounds (1,000 Australian dollars) for each of them, dead or alive.

**Raids of the Kelly gang.** In December 1878, the gang rode into the town of Euroa, Victoria, where they



robbed the local bank of over 2,000 pounds (4,000 Australian dollars). The reward for the gang rose to 4,000 pounds (8,000 Australian dollars). In February 1879, they crossed into New South Wales and raided the town of Jerilderie, where they locked up the police and robbed a bank. Ned Kelly tried unsuccessfully to find the editor of the local newspaper. He wanted the editor to print an 8,000-word manifesto, now known as the *Jerilderie Letter*, in which he explained his actions.

The reward for the gang rose to 8,000 pounds (16,000 Australian dollars), a staggering sum in those days. But the reward found no takers.

**Kelly's last stand.** For more than a year, the Kelly gang remained in hiding. Early in 1880, the gang stole *mouldboards* (plough blades) from farms in the region and shaped them into helmets and suits of armour. The armour covered their bodies but left their arms and legs exposed to gunfire. In June 1880, the gang took over the small township of Glenrowan, holding the townspeople captive in the hotel. The police surrounded the hotel. The siege lasted more than 11 hours and involved 57 police officers. During the siege, Dan Kelly, Steve Hart, and Joe Byrne were killed. Ned Kelly was captured in the early morning of June 28, as he attempted to rescue his companions from the hotel. Dressed in his armour, Kelly advanced on the police lines and was finally brought down by shots fired at his legs.

Ned Kelly was brought to trial in October 1880. No witnesses were called for the defence. He was found guilty and hanged in Melbourne Gaol on Nov. 11, 1880, despite an active campaign for his reprieve.

**Related articles** in *World Book* include:

Barry, Sir Redmond	Glenrowan	Sherritt, Aaron
Bushrangers	Nolan, Sir Sidney	Stewart, Douglas
Byrne, Joe		

**Keloid** is a mass of scar tissue that occurs at the site of a healing wound. Keloids may be various shapes and sizes. They usually are raised above the surface of the skin and extend beyond the original skin injury. Keloids result from the overproduction of fibrous connective tissue in the *dermis* (inner layer of skin). They often occur after the skin has been injured by a laceration or by surgery, but they may appear spontaneously. Keloids can be surgically removed, but they frequently reappear weeks or months later.

**Kelp** is any of a variety of large, brown seaweeds that grow underwater and on rocky shores. Kelps are found in cold waters throughout the world. They do not grow in tropical waters.

Kelps vary widely in size and form. One type, called *giant kelp*, may have hundreds of branches, each of which has hundreds of leaves. It may measure up to 60 metres long. In areas where many giant kelps are found together, the plants form underwater forests. Other types of kelps consist of a single branch and may be less than 1 metre long.

Many marine animals, such as snails and sea urchins, feed on kelps. Other animals, including lobsters and many fish, use kelps for shelter. The Kelp "forests" off the Californian coast harbour a rich variety of marine life. People in China and Japan grow kelp for food on special farms in the ocean. In many countries, kelps are collected from the places where they grow naturally. Harvested kelps yield *algin*, a substance that is used in the



**A giant kelp plant** provides shelter for fish, *above*. Giant kelp may grow very large and have hundreds of branches. In some areas, these huge plants form underwater forests.

manufacture of ice cream, salad dressing, beer, paper, cosmetics, and many other products.

**Scientific classification.** Kelps belong to the kingdom Protista. Giant kelp is *Macrocystis pyrifera*.

See also **Iodine**; **Ocean** (picture: Benthos); **Seaweed**. **Kelvin, Lord** (1824-1907), William Thomson, was one of the great British physicists of the 1800's. Kelvin published 661 papers on a wide range of scientific subjects, and he patented 70 inventions. Queen Victoria knighted Kelvin for his work as the electrical engineer in charge of laying the first successful transatlantic cable in 1866.

Kelvin invented the mirror galvanometer used in cable signalling, and the siphon recorder, still used to receive the signals (see **Galvanometer**). He invented the first ship's compass that was largely free from the magnetic influence of iron on the ship. He also invented a mechanical tide predictor that could foretell variations in sea level in any port.

Kelvin first suggested the use of the gas thermometer for accurate temperature readings. He also proposed a temperature scale where absolute zero is equal to  $-273.15^{\circ}\text{C}$ . This scale is called the kelvin thermodynamic scale (see **Absolute zero**). Kelvin also tried to calculate the age of the earth, but the discovery of radioactivity showed that his basic assumptions were wrong.

Kelvin was born on June 26, 1824, in Belfast, Ireland. He was educated at the University of Glasgow, in Scotland, and Cambridge University, England. Kelvin became professor of natural philosophy at the University of Glasgow in 1846. He remained at that university until he retired in 1899. In 1892, he received the title of Baron Kelvin of Largs.

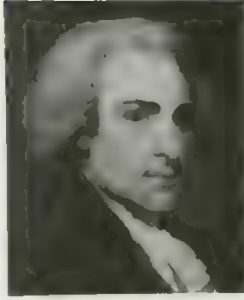
**Kelvin scale.** See **Absolute zero**; **Metric system** (Temperature measurements); **Kelvin, Lord**; **Temperature**.

**Kemal Atatürk.** See **Atatürk, Kemal**.

**Kemble** was the name of a British theatrical family in the 1700's and 1800's. The most notable member of the family was Sarah Siddons (see **Siddons, Sarah Kemble**). Roger Kemble, a strolling player and manager, had 12

children. Of these, the best known, apart from Sarah, was John Philip Kemble.

**John Philip Kemble** (1757-1823) was a gifted actor-manager, noted for his tragic roles. He is particularly remembered for his roles as Hamlet, Coriolanus, and Macbeth. Kemble was born at Prescot, near Liverpool, England, and studied to be a Roman Catholic priest. Then he joined an acting company



John Kemble

at Wolverhampton. In 1783, he made his debut at Drury Lane Theatre in London, as Hamlet. From 1788 to 1802, Kemble managed Drury Lane. In 1802, he became a joint proprietor of Covent Garden Theatre, London.

**Kempis, Thomas à.** See Thomas à Kempis.

**Kendall, Henry** (1839-1882), was one of the first poets to capture the Australian scene in verse. He succeeded in portraying the unique qualities of the Australian landscape at a time when English poets still strongly influenced Australian writers. Kendall's lyric verse is fluent, musical, and intense in its feeling for the New South Wales bush country.

Reflections of his unhappy personal life, dogged by poverty, ill health, and intemperance, can be seen in Kendall's frequent lapses into sentimentality. "Bell Birds" is considered one of his finest lyrics. His bush ballads, of which "The Song of the Cattle Hunters" is best known, are vigorous and full of action in spite of his sometimes inaccurate descriptions. His work imitates the English Victorian poets to the extent that it hinders his descriptions of a truly Australian landscape. Kendall's works include *Poems and Songs* (1862), *Leaves from Australian Forests* (1869), and *Songs from the Mountains* (1880).

Henry Thomas Kendall was born on a farm near Milton, New South Wales.

**Kendall, Thomas** (1778-1832), a British schoolteacher and missionary, helped to compile the first dictionary of the Maori language. He was also the first person to become a resident missionary in New Zealand. Early in 1814, Kendall and another missionary visited New Zealand to investigate the possibility of establishing a mission. They set up a mission near the Bay of Islands. Kendall was the grandfather of the poet Henry Kendall.

**Kendrew, Sir John Cowdery** (1917- ), a British physicist, shared the 1962 Nobel Prize for chemistry with Max Perutz. Through X-ray techniques, they traced the structure of haemoglobin and myoglobin. These are two proteins found in the blood and muscles of human beings and animals.

Kendrew was born at Oxford, England. He went to school in Oxford and Bristol, and attended Cambridge University. He directed the molecular biology laboratory at Cambridge from 1946 to 1975.

**Keneally, Thomas** (1935- ), an Australian writer, wrote *Schindler's Ark*, which won the United Kingdom's Booker Prize and the *Los Angeles Times*' Fiction Prize in 1982. The novel tells the true story of a German businessman who saved the lives of more than a thousand Jews in Nazi Germany.

Thomas Michael Keneally was born and educated in Sydney. He trained for the Roman Catholic priesthood, but was not ordained. He then worked as a school-teacher. His first novel, *The Place at Whitton*, was published in 1964. He won the Miles Franklin Award twice: *Bring Larks and Heroes* (1967) is a story of colonial times in Australia and *Three Cheers for the Paraclete* (1968) is a novel dealing with conflict within the Roman Catholic Church. *The Chant of Jimmy Blacksmith* (1972), the story of an Aborigine caught between two worlds, won the Royal Society of Literature Prize in 1973.

**Kenilworth.** See Warwickshire.

**Kennan, George Frost** (1904- ), an American diplomat, is credited with developing the U.S. policy to prevent Soviet expansion after World War II (1939-1945).

This policy became known as the *containment policy*. Two of his books received both the Pulitzer Prize and the National Book Award—*Russia Leaves the War* (1956) and *Memoirs, 1925-1950* (1967). His other works include *American Diplomacy: 1900-1950* (1951), *Realities of American Foreign Policy* (1954), and *Russia and the West Under Lenin and Stalin* (1961). Kennan was a major architect of the Marshall Plan for post-World War II reconstruction of Europe (see *Marshall Plan*).

Kennan was born in Milwaukee, Wisconsin.

**Kennedy** is the name of a family that became prominent in American government, politics, and business. John F. Kennedy was elected president of the United States in 1960. See *Kennedy, John F.*

**Joseph Patrick Kennedy** (1888-1969), father of the U.S. president and senators, held several government positions and was one of the wealthiest men in the United States. At the age of 25, he gained control of a small bank in East Boston and became the youngest bank president in the United States. He made much of his fortune by investing in stocks, bonds, and property.

President Franklin D. Roosevelt appointed Kennedy to the newly created Securities and Exchange Commission in 1934. He was elected its first chairman. He served as U.S. ambassador to the United Kingdom from 1937 to 1940.

Born in Boston, Kennedy graduated from Harvard University. In 1914, Kennedy married Rose Fitzgerald (1890-1995), daughter of the mayor of Boston. Rose Kennedy took part in her family's political activities.

**Joseph P. Kennedy, Jr.** (1915-1944), oldest of the Kennedy children, was a World War II hero. A U.S. Navy pilot, he volunteered to take part in a hazardous mission against German V-2 rocket bases. Kennedy and his copilot were killed when their plane exploded in flight. He was born in Hull, Massachusetts.

**Robert Francis Kennedy** (1925-1968) was the third son of Joseph and Rose Kennedy. He was attorney general of the United States from 1961 to 1964 and senator from New York from 1965 to 1968. Kennedy was assassinated in Los Angeles in June 1968, while campaigning for the Democratic nomination for president. Sirhan Bishara Sirhan was convicted of his murder.

Kennedy entered the government in 1951 as an attorney in the Department of Justice. From 1953 to 1955, he was a counsel for the Senate Permanent Subcommittee on Investigations. He gained public attention in the late 1950's as chief counsel for the Senate committee that investigated improper labour and management activities.



He also managed his brother John's campaign for the Senate in 1950 and the presidency in 1960. Kennedy was born in Brookline, Massachusetts.

**Edward Moore Kennedy** (1932- ) is the youngest child and only surviving son of Joseph P. and Rose Kennedy. He has served in the United States Senate since 1962.

From 1969 to 1971, Kennedy was Democratic *whip* (assistant leader) of the Senate and he served as chairman of the Senate's Judiciary Committee from 1979 to 1981. In 1987, Kennedy became chairman of the Labor and Human Resources Committee. He was an unsuccessful candidate for the Democratic presidential nomination in 1980. Kennedy was born in Boston, Massachusetts.

#### Kennedy daughters.

The Kennedy family also included five daughters: **Rosemary** (1918- ), **Kathleen** (1920-1948), who was married to the Marquis of Hartington; **Eunice** (1921- ), the wife of Sargent Shriver, first director of the Peace Corps; **Patricia** (1924- ), who was formerly married to the actor Peter Lawford; and **Jean** (1928- ), the wife of Stephen Smith, a shipping executive.

**Kennedy, Edmund** (1818-1848), was an Australian explorer. He was killed by Aborigines while exploring Cape York in northern Queensland.



Robert F. Kennedy



Edward M. Kennedy

Edmund Besley Court Kennedy was born on Guernsey, one of the Channel Islands in the English Channel. He went to Sydney in 1840. He joined the Surveyor General's Department and took part in surveys of Portland Bay in the Port Phillip district, Victoria. In 1845, he served as second-in-command of Sir Thomas Mitchell's expedition to central Queensland. In 1847, he led an expedition to the Cooper Creek area in South Australia.

In 1848, Kennedy was chosen to lead an overland expedition from Rockingham Bay to Cape York, a distance of about 800 kilometres.

The party of 13 men was well-armed and well-equipped with 27 horses, 100 sheep, and 3 carts. But the animals and carts, which could have been so useful on the inland plains, proved totally impractical in the tropical rainforest of the Tully River valley. In six weeks, the party had only gone 30 kilometres inland, and they feared they would be late for their August meeting far to the north with the ship *Bramble*.

After crossing the Great Dividing Range, the expedition began to move more quickly. They crossed the Mitchell and Palmer rivers, found and passed through a gap in the mountains, and followed the North Kennedy River to Princess Charlotte Bay. But when the party arrived there in October, the *Bramble* had already gone. The expedition staggered on through harsh, unsettled country.

Six months after leaving Rockingham Bay, Kennedy set up camp at Weymouth Bay, near Cape Direction. There, he divided the party, leaving eight men at the camp while he pressed on with four others, including his Aboriginal guide, Jacky Jacky. At Shelburne Bay, only Kennedy and Jacky Jacky continued on the journey. About 20 kilometres from Cape York, in the second week of December, Aborigines attacked the two men and severely wounded them. Kennedy soon died. Jacky Jacky struggled on to join the *Bramble*. He directed a rescue party to Shelburne and Weymouth bays, where they found only two of the group still alive.

**Kennedy, Jimmy** (1903-1984), was an Irish songwriter. He wrote more than 1,000 popular songs, including "The Teddy Bears' Picnic."

James Kennedy was born in Omagh, County Tyrone, in Ireland. He grew up in Portstewart, County Derry, and was educated at University College, Dublin. He worked as a teacher of English before taking up songwriting full-time. Among his most famous songs are "Red Sails in the Sunset," "South of the Border," and "Love is Like a Violin." His "Cokey-Cokey" became popular as the dance "The Hokey-Cokey." Kennedy was a friend of the American singer Bing Crosby, who recorded nine of his songs.

**Kennedy, John Fitzgerald** (1917-1963), was president of the United States from 1961 to 1963. He was the youngest man ever elected president and the youngest to die in office. He was shot and killed on Nov. 22, 1963, after two years and 10 months as chief executive.

**Early life.** Kennedy was born on May 29, 1917, in Brookline, Massachusetts, U.S.A. His father, Joseph P. Kennedy, was a self-made millionaire. John F. Kennedy graduated from Harvard University in 1940.

Several months before the United States entered World War II in 1941, Kennedy enlisted in the U.S. Navy. Late in 1942, he was assigned to a patrol torpedo (PT)



**Kennedy's expedition** travelled over rough terrain in Queensland. They set up camps at Weymouth and Shelburne bays. Kennedy and most of his party died before rescuers arrived.

boat squadron and later learned to command one of the small craft. During his naval service in the South Pacific, Kennedy received the Navy and Marine Corps Medal.

Kennedy began his political career in 1946, when he was elected to the House of Representatives. A Democrat, he was re-elected to the House in 1948 and 1950. In 1952, he won election to the Senate by narrowly defeating incumbent Republican Senator Henry Cabot Lodge, Jr. In 1956, he began working to be nominated for the 1960 presidential election. In 1958, he won reelection to the Senate.

At the 1960 Democratic national convention, Kennedy won the party's presidential nomination on the first ballot. The delegates nominated Senator Lyndon B. Johnson of Texas for vice president.

The Republicans chose Vice President Richard M. Nixon to oppose Kennedy for the presidency.

The 1960 campaign was a hard-fought race. Both candidates were young, vigorous campaigners. At first, most experts believed Nixon would win. Nixon had the advantage of being vice president under Dwight D. Eisenhower, an unusually popular president.

But Kennedy's good looks, wealth, and attractive wife had made him a popular subject in newspapers and magazines. Television also helped Kennedy during his four televised debates with Nixon. His poise helped answer criticism that he lacked the maturity needed for the presidency. The debates were the first time that presidential candidates argued campaign issues face-to-face.

Kennedy defeated Nixon by fewer than 115,000 popular votes. But he won a clear majority of votes in the Electoral College (see *Electoral College*). Kennedy received 303 electoral votes to 219 for Nixon. At age 43, Kennedy was the youngest man ever elected president. He was also the first Roman Catholic president.

**Kennedy's administration (1961-1963).** The *New Frontier* was the name Kennedy gave to his legislative programme. In April 1961, the legislators approved aid to economically depressed areas. In September 1962, Congress passed the President's Trade Expansion Act. The act gave the president wide powers to cut tariffs so the United States could trade freely with the European Common Market.

One of the most successful of Kennedy's programmes was the U.S. Peace Corps. It was launched by executive order in March 1961, and was later authorized by Con-



John F. Kennedy

gress. The corps sent thousands of Americans abroad to help developing nations raise their standards of living.

**Civil rights.** Demands for equal rights for blacks became the major domestic issue during the Kennedy administration. From 1961 to 1963, racial protests and demonstrations took place in all parts of the United States. To meet the growing demands of blacks, Kennedy asked Congress to pass legislation requiring hotels, motels, and restaurants to admit customers regardless of race. The president also asked Congress to grant the attorney general authority to begin court suits to desegregate schools on behalf of private citizens.

**Cuba.** On April 17, 1961, Cuban rebels, with U.S. help, invaded their homeland to overthrow Fidel Castro, the Communist-supported dictator. The assault ended in disaster. Kennedy accepted blame for this ill-fated *Bay of Pigs Invasion*. Another Cuban crisis erupted in October 1962, when the United States learned that the Soviet Union had installed missiles in Cuba capable of striking U.S. cities. Kennedy ordered the U.S. Navy to *quarantine* (blockade) Cuba. Navy ships were ordered to turn back ships delivering Soviet missiles to Cuba.

For a week, war seemed likely. Then, Soviet Premier Nikita S. Khrushchev ordered all Soviet offensive missiles removed. The president then lifted the quarantine. See *Cuba* (The Cuban missile crisis).

**Berlin.** In 1961, the Soviet Union threatened to give Communist East Germany control over the West's air and land supply routes to Berlin. The threat was part of a Soviet effort to end the combined American, British, and French control of West Berlin, begun when World War II ended. The Western nations opposed any threat to the freedom of West Berlin.

In June 1961, Kennedy discussed Berlin with Khrushchev at a two-day meeting in Vienna, Austria. Nothing was settled, and the crisis deepened. Both countries increased their military strength. In August, the East Germans built a wall between East and West Berlin to prevent people from fleeing to the West. Kennedy called up about 145,000 members of the U.S. National Guard and reservists to strengthen U.S. military defence. They were released 10 months later. See *Berlin*.

Southeast Asia continued to be a trouble spot. Kennedy sent U.S. military advisers there in 1961 and 1962 when Communist guerrillas threatened South Vietnam and Thailand. Kennedy also sent advisers to Laos.

**Disarmament.** In July 1963, the Soviet Union, the United States, and the United Kingdom signed a treaty banning the testing of atomic weapons in the atmosphere, in outer space, and under water. Testing was permitted underground. The treaty avoided the issue of internal inspections, which had deadlocked previous negotiations. Many countries that had no atomic weapons also signed the treaty.

**Kennedy's assassination.** Kennedy was shot and killed by an assassin on Nov. 22, 1963, as he rode through the streets of Dallas, Texas, in an open car.

Behind the president's car was a limousine filled with Secret Service agents. Vice President and Mrs. Johnson rode in the third car, also accompanied by Secret Service men. Dallas had a reputation as a centre for people who strongly opposed Kennedy. But friendly, cheering crowds lined the streets.

At 1230 p.m., the cars were on the last part of the trip.

#### Important dates in Kennedy's life

- 1917 (May 29) Born in Brookline, Massachusetts
- 1940 Graduated from Harvard University.
- 1941-1945 Served in the U.S. Navy during World War II.
- 1946 Elected to the U.S. House of Representatives.
- 1952 Elected to the U.S. Senate.
- 1953 (Sept. 12) Married Jacqueline Lee Bouvier.
- 1960 Elected President of the United States.
- 1963 (Nov. 22) Assassinated in Dallas, Texas



Suddenly, three shots rang out and the president slumped down, hit in the neck and head. Texas Governor John B. Connally, in the same car, received a bullet in the back. Mrs. Kennedy held her stricken husband's head in her lap as the limousine raced to nearby Parkland Hospital.

Doctors worked desperately to save the president, but he died at 1 p.m. without regaining consciousness. Connally, although seriously wounded, later recovered.

At 2.39 p.m., Johnson was sworn in as president. Then the presidential plane carrying the new chief executive and his wife, the body of the dead president, and the late president's widow returned to Washington, D.C. Kennedy was buried with full military honours at Arlington National Cemetery across the Potomac River from Washington.

**The death of Oswald.** Witnesses said the shots that killed the president came from a window of the Texas School Book Depository, a building along the route of the motorcade. Police raced into the building, but could not find the killer. Then they began a search for an employee of the building who had left the scene a few minutes after the shooting. About 1.15 p.m., the employee, Lee Harvey Oswald, is said to have shot and killed a Dallas policeman while resisting arrest.

Oswald was finally arrested in a theatre a short while later, and was charged with the murders of the president and the police officer. Oswald had once tried to become a Soviet citizen and had been active in the Fair Play for Cuba Committee, a group that supported Cuba's Communist dictator Fidel Castro.

Dallas police claimed that the evidence against Oswald was overwhelming, but he denied both murders. On Sunday, November 24, two days after Kennedy's assassination, Oswald was scheduled to be taken from the Dallas city jail to the county jail. As he was being led to an armoured car for the trip, a Dallas nightclub owner, Jack Ruby (or Rubinstein), stepped out of the crowd and shot and killed Oswald.

**The assassination controversy.** The Warren Commission, headed by Earl Warren, chief justice of the Supreme Court of the United States, investigated Kennedy's assassination. In 1964, the commission reported that Oswald had acted alone. However, many critics disputed the findings. Many of them believed Oswald was part of a group that had planned to murder Kennedy.

**Kennedy, Margaret** (1896-1967), a British novelist, journalist, and playwright, won success in 1924 with her novel *The Constant Nymph*, a charming and poignant love-story of a young girl. The book was later made into a play and film. She also wrote a sequel, *The Fool of the Family* (1930). Her other novels include *Troy Chimneys* (1953), which won the James Tait Black award, *The Oracles* (1955), and *Not in the Calendar* (1964). Her *Life of Jane Austen* was published in 1950. Her plays are *Come With Me* (1928), written with Basil Dean, *Escape Me Never* (1933), and *Autumn* (1937), written with Gregory Ratoff. Kennedy was born in London.

**Kennet** (pop. 67,500) is a local government district in Wiltshire, England, administered from the old market town of Devizes. The other chief town is Marlborough, famous for its public school. Savernake Forest, some of Salisbury Plain, and part of the Wessex Downs Area of Outstanding Natural Beauty all lie within Kennet. The

Kennet and Avon Canal and the Vale of Pewsey also come within the district. Many prehistoric sites exist in the area, including the stone circle near the village of Avebury (see Avebury).

**Kenneth.** See **Kings and queens of Britain and Ireland** (Early rulers of Scotland and Wales).

**Kennington Oval.** See **Cricket; Lambeth.**

**Kenny, Elizabeth** (1880-1952), an Australian nurse, developed a method of treating poliomyelitis (see **Poliomyelitis**). She became a nurse in the *bush* country (interior) of Australia. One day, an epidemic of poliomyelitis struck, and Kenny could not get medical help. This led her to work out her own method of treating the victims. Kenny found that prompt application of hot woollen packs relieved muscle spasms and usually prevented the patient from becoming crippled.

Sister Kenny, as she was later called, served as a nurse in the Australian Army during World War I

(1914-1918). In 1933, she set up her own clinic in Townsville in Queensland, Australia. Her treatment was accepted for use in Australian hospitals by 1939. She lectured and demonstrated her method overseas.

Kenny was born in Wariialda, New South Wales.

**Kensington and Chelsea** (pop. 127,600) is a borough within the Greater London area. It is a Royal Borough made up of the former boroughs of Chelsea and Kensington. Kensington Palace, owned by the Crown, was built in part by the architect Christopher Wren and lies in Kensington Gardens. At South Kensington are the Natural History Section of the British Museum, the Victoria and Albert Museum, the Science Museum, Imperial College, the Royal College of Music, the Royal College of Art, and the Royal Albert Hall. Holland House, built in 1607, has associations with the writers Lord Byron and Richard Brinsley Sheridan. Chelsea is noted for its fashionable shops and elegant houses.

**Kensington rune stone** is a stone slab inscribed with early Germanic characters called *runes*. Olof Ohman, a Swedish immigrant in the United States, claimed to have found the rune stone in 1898 on his farm near Kensington, Minnesota. The inscription on the stone is dated 1362 and tells of a group of Swedish and Norwegian Vikings who set out from an area of America called Vinland on an expedition (see **Vinland**). However, the language is not typical of the 1300s. Ohman owned a book about runes, and most scholars believe he forged the stone, though some controversy remains.

See also **Rune**.

**Kent** is the county in southeastern England known as *the garden of England* because of its beautiful countryside. It is especially known for the blossom of its many orchards in the springtime and for its hop fields. Kent has two cathedrals, at Canterbury and Rochester. Canterbury Cathedral was the scene of one of the most famous murders in British history. Four knights killed Thomas à Becket, archbishop of Canterbury, in the ca-



Elizabeth Kenny

thedral in 1170. Afterwards, Becket was *canonized* (made a saint), and many pilgrims visited his shrine. See **Becket, Saint Thomas** & **Canterbury**.

Kent has many historical and literary associations. Well-known people born in Kent include William Caxton, who introduced printing into England; the dramatist Christopher Marlowe; and General James Wolfe, the victorious general in the Battle of Quebec. The actress Ellen Terry and the author Charles Dickens also have associations with Kent.

### People and government

Kent people have a wide variety of occupations. In eastern Kent, people rely on agriculture and tourism. The coastal towns have docks, and many towns have large manufacturing industries. Many people who live in Kent travel daily to work in London.

**Local customs and legend.** A famous Kent custom is distribution of Biddenden Dole on Easter Monday. The custom started on the death of Mary and Eliza Chulkhurst, Siamese twins born about the year 1100. In their estate, they left 8 hectares of land as a source of regular income for an annual dole of bread and cheese for poor people. Each year the dole is distributed from the window of an old cottage, built on land that once belonged to the twins. Hard biscuits, known as *Bidden-den cakes*, are given to onlookers. Each cake has stamped on it the date 1100 and figures of the twins.

Canterbury still keeps its ancient custom of sounding the curfew. Each evening the bell is sounded from Bell Harry Tower in the cathedral. William the Conqueror introduced the curfew during the 1000's.

**Recreation.** Cricket has been popular in Kent for more than 200 years. Canterbury's Cricket Week, the first week of August, is one of the county's major sporting events. During the week, a number of events and enter-

### Facts in brief about Kent

**Administrative centre:** Maidstone.

**Largest towns:** Maidstone, Canterbury, Margate, Dover, Tunbridge Wells, Gillingham, Gravesend, Ashford.

**Area:** 3,730 km<sup>2</sup>.

**Population:** 1991 census—1,485,600.

**Chief products:** *Agriculture*—apples, barley, dairy products, flowers, fruit, hops, oats, pears, root crops, sheep, vegetables, wheat. *Fishing*—oysters. *Manufacturing and processing*—beer, bricks, cement, chemicals, clothing, explosives, flour, oil products, paper and paper products. *Mining and quarrying*—gravel, limestone, sand.

tainments are staged in addition to the cricket games involving the county team. Kent has one team, Gillingham, in the Football League. Well-known golf courses in the county are at Sandwich and Deal. In addition, the county has some unusual sports. Canterbury people still play an ancient game called *bat and trap*. A batsman has to hit a ball between posts about 4 metres apart.

All activities connected with coastal areas are popular. Kent has fine beaches, excellent bathing, and good sea fishing. Rowing and sailing are popular, and a number of towns have regattas. Horse lovers can watch racing at Folkestone. Brand's Hatch, the motor-racing circuit, is near Eynsford.

**Local government.** Kent is divided into 14 local government districts. They are *Ashford*, which includes Ashford and Tenterden; *Canterbury*, which includes Canterbury, Herne Bay, and Whitstable; *Dartford*, which includes Dartford and Swanscombe; *Dover*, including Deal, Dover, and Sandwich; *Gillingham*; *Gravesham*, which includes Gravesend and Northfleet; *Maidstone*; *Rochester upon Medway*, which includes Chatham, Rochester, and Strood; *Sevenoaks*, which includes most of the western edge of the county; *Shepway*, which includes Folkestone, Hythe, and New Romney; *Swale*, which includes Faversham, Isle of Sheppey, and Sittingbourne; *Thanet*, which includes Broadstairs, Margate, and Ramsgate; *Tonbridge and Malling*; and *Tunbridge*



Kensington Runestone, Museum, Alexandria, Minnesota, U.S.A.

The **Kensington runestone** is claimed to be the record of a Viking exploration of America before the time of Columbus. The stone is 91 centimetres long and 14 centimetres thick. It weighs 104 kilograms.



**Kent** is a county in southeastern England lying between the estuary of the River Thames and the Strait of Dover.





Oast houses and blossoming fruit trees are a familiar part of Kent's scenery in the spring. Oast houses are used for drying hops, which are used in making beer.

**Wells.** Kent County Council, which has headquarters at Maidstone, provides some public services throughout the county.

The crown court sits at Canterbury and Maidstone. Kent County Constabulary, the local police force, has its headquarters at Maidstone.

### Economy

**Manufacturing.** Kent has an important paper-making industry. The main centres of the industry are Maidstone, Dartford, Gravesend, Greenhithe, and Northfleet. All kinds of paper are produced, including writing paper, newsprint, and banknote paper.

Between Dartford and Gravesend, there is a considerable cement industry. Shipbuilding and ship repair industries are in Faversham, Gravesham, Ramsgate, Rochester, and Sheerness.

Maidstone has brewing and engineering industries and factories producing biscuits, clothing, and tarpaulin. Dartford products include bricks, chemicals, fireworks, and scientific instruments. Chatham has engineering, flour-milling, and sawmilling industries.

Ashford has acquired many new industries in recent years. Faversham has a fruit packing and canning industry. The town also produces beer, explosives, fertilizers, and seeds. Workers at Tonbridge make cricket bats and parking meters. Tunbridge Wells produces scientific instruments and fishing tackle. A nuclear power station is at Dungeness.

**Agriculture.** Apple and cherry orchards cover large areas in Kent. Other important fruit crops include blackberries, currants, gooseberries, loganberries, raspberries, and strawberries. Hop fields also cover large areas. The most important hop-growing area is the Vale of

Kent, east of Tonbridge. Important grain crops are barley, oats, and wheat. In eastern Kent, farmers grow root crops on the light chalky soil. Some farmers grow *lucerne* (alfalfa) for animal fodder. Market gardeners in northern Kent grow vegetables for sale in London.

Kent has more sheep compared with its area than any other English county. Some farmers keep sheep on Romney Marsh in the summer. In the winter, they move the sheep to the drier pastures of the North Downs. Dairy farming has become increasingly important in Kent. Romney Marsh now has dairy cattle. It also produces flowers, potatoes, strawberries, and wheat.

Some coastal towns have fishing industries. Whitstable is known for its oysters.

**Tourism.** Canterbury is one of the United Kingdom's leading tourist centres and attracts many overseas visitors. Its cathedral attracts pilgrims and sightseers (see **Canterbury**). People in the coastal towns depend greatly on tourism. Resorts range from quiet Broadstairs to lively Margate, which has a large amusement park.

**Transportation and communication.** Kent has important road and rail routes for goods and passengers travelling between the United Kingdom and continental Europe. Folkestone is the UK terminal for the Channel Tunnel, an undersea rail link connecting the United Kingdom with France, which was expected to open in 1994. The Channel Tunnel will eventually form part of a high-speed rail network linking London with major European cities.

Dover has boat services to various French and Belgian ports and hovercraft services to Boulogne and Calais. Another hovercraft service links Ramsgate and Calais. Folkestone has boat services to Boulogne and Calais. Passenger ferries also operate between Sheer-

## Places to visit

Following are brief descriptions of some of Kent's interesting places to visit.

**Bedgebury Pinetum**, near Goudhurst, is a tree museum that has varieties from all parts of the world.

**Bleak House**, in Broadstairs, was Charles Dickens' home. It is now a museum devoted to him. Other local buildings also have associations with Dickens.

**Canterbury Cathedral** has many historic features. It dates from about 1100. Also in Canterbury is St. Martin's Church, which dates from the 500's. It is probably England's oldest church still in use.

**Cranbrook** has a windmill, the Union Mill, which is the largest in England that still works.

**Knole House**, near Sevenoaks, has many rare and valuable furnishings. It has deer in its park.

**Lullingstone**, a Roman villa near Eynsford, is unique among Roman villa remains in England in having a Christian chapel.

**Penshurst Place**, near Fonthelm, was the birthplace of the poet Sir Philip Sidney. Attractions include the medieval Great Hall, built in 1340.

**Romney, Hythe, and Dymchurch Railway** is the smallest public railway in the world. The railway's steam locomotives cover about 22 kilometres between Hythe and Dungeness.

**Smallhythe Place**, near Tenterden, was the home of the actress Ellen Terry. It has a theatrical museum including costumes worn by Terry.

**Walmer Castle** was built by Henry VIII for coastal defence. It is the residence of the Lord Warden of the cinque ports. Its museum has relics of former wardens, particularly the Duke of Wellington.

**Westerham** has a building now called *Quebec House*. It was the boyhood home of General James Wolfe, who won a major battle at Quebec, in Canada. Chartwell, Sir Winston Churchill's home, is nearby.

## History

ness and the Dutch port of Flushing. Kent International Airport is near Ramsgate.

Ashford is Kent's railway centre. Motorways in the county are the M2 and M20, which run roughly east-west across the northern part of the county. These two motorways are linked at their western ends by the M25 and M26 motorways. A road tunnel and bridge at Dartford connect with Purfleet in Essex, linking the southern and northern parts of the M25.

A daily newspaper serves Chatham, Rochester, and Gillingham. The county has many local weekly papers. Radio Kent is a BBC local radio station serving north-western Kent. Invicta Sound, a commercial station, broadcasts from studios in Canterbury and Maidstone.

## Land

**Location and size.** Kent is bordered by the estuary of the River Thames on the north, the Strait of Dover on the east, East Sussex on the south, and Surrey and London on the west. Its maximum dimension is about 55 kilometres from north to south and about 95 kilometres from east to west.

**Land regions.** Low-lying areas of clay, sand, and silt cover most of the land that lies along the Thames estuary in northern Kent. The Isle of Grain in the Thames estuary is no longer an actual island. Silt has filled the creeks that once separated the area from the mainland.

To the east of the Isle of Grain, the Swale—a channel that is filled with water at high tide—separates the Isle of Sheppey from the mainland. The Isle of Thanet is a chalk area in northeastern Kent.

The North Downs, a chalk upland, extend across the county. They end at the coast, where they form the white cliffs of the Strait of Dover.

The Weald, an area of clays and sandstones, lies between the North Downs in Kent and the South Downs in East Sussex (see Weald).

**Rivers.** The most important river in Kent is the River Medway, which rises in the centre of the Weald and flows into the Thames estuary.

**Climate.** The northern part of Kent along the Thames estuary is one of the driest areas in the United Kingdom. Only about 560 millimetres of rain falls every year in this area. More than 760 millimetres falls every year on the North Downs and on the Weald. Dover has average temperatures of about 4° C in January and 17° C in August.

Julius Caesar landed at Deal in Kent in 55 B.C. In A.D. 43, the Romans again landed in Kent and occupied it. The Saxons attacked Kent in the A.D. 200's. After the Romans left Britain, Saxon attacks continued. The people appealed to the Jutes for assistance. Hengest, a Jutish chieftain, and his brother Horsa, landed in Kent in 449. Under the rule of Hengest's son, Kent became one of the seven kingdoms of Anglo-Saxon England.

Historians consider that Ethelbert was the most important king of Kent. During Ethelbert's reign, St. Augustine landed in Thanet, in 597. Ethelbert gave St. Augustine a church at Canterbury.



Canterbury has many historic buildings, including the Weavers' House, above. The house dates from the 1500's, when the city had an important weaving industry.



After the Norman conquest in 1066, many castles and churches were built in Kent. The cinque ports also became important (see **Cinque ports**). Four of the cinque ports—Dover, Hythe, Romney, and Sandwich—are in Kent. Only Dover is still an active port. Romney and Sandwich are some distance from the sea.

At the time of the Napoleonic wars, many defensive positions were established in Kent, including Martello towers (see **Martello towers**). The Royal Military Canal, which bounds Romney Marsh in the north, was constructed as a defence work in the early 1800's. In World War II, soldiers who had been evacuated from Dunkerque in 1940 landed at ports in Kent. German bombers damaged many towns in the county.

Under the London Government Act of 1963, Kent's boundary with London was changed. The county lost about 5 per cent of its surface area and about 30 per cent of its population. The area that was formerly Kent consists of the London boroughs of Bexley and Bromley. Kent was relatively little affected by England's local government reorganization in 1974. But Canterbury, which had been independently governed as a county borough, became an integral part of the county.

**Related articles in World Book include:**

Canterbury	Maidstone
Dover	Margate
Dover, Strait of	Thames
Goodwin Sands	Tunbridge Wells

**Kent, Duke of.** See **Royal Family**.

**Kent, Rockwell** (1882-1971), was an American painter, illustrator, printmaker, and author. He found material for his books and many of his drawings on his travels to remote parts of the world. He won fame in 1920 with *Wilderness: A Journal of a Quiet Adventure in Alaska*, which contains many of his pictures of Alaska. He next travelled to the southernmost tip of South America. He made the last part of his trip in a lifeboat. He wrote about this journey in *Voyaging: Southward from the Strait of Magellan* (1924). These books and *Salamina* (1935) and *N by E* (1936) established him as both a writer and an artist. Kent also wrote *Greenland Journey* (1962) and the autobiography *It's Me, O Lord* (1955).

Kent adapted his style as an artist to the subjects he illustrated. His work showed consistently sure draughts-

manship and a strong sense of design. His illustrated editions of books written by other authors include *Moby-Dick*, *Beowulf*, and *The Canterbury Tales*.

Kent was born in Tarrytown Heights, New York. He studied architecture at Columbia University, and studied painting with several noted artists, including William Merritt Chase and Robert Henri.

**Kent, William** (1685-1748), a leading British architect of the Palladian style, is best known for his design of the buildings at the Horse Guards' Parade, in London. Other notable works include Holkham Hall in Norfolk, Chiswick House, Chiswick (in collaboration with Lord Burlington), and number 44 Berkeley Square, London. Kent excelled in designing magnificent doorways, chimney-pieces, coffered ceilings, and gilt furniture. He was also a master of landscape gardening and a painter. Kent was born at Bridlington, in Humberside, England.

**Kentigern, Saint** ( ? -A.D. 603), was an early Christian missionary in Scotland. Kentigern, also called *Mungo*, is said to have been the grandson of a prince in southern Scotland. He became a missionary and Bishop among the Britons (Welsh) of Strathclyde. But Kentigern suffered persecution at their hands, and so he fled to Cumberland and Wales. He is believed to have founded a monastery at St. Asaph, now in Clwyd, Wales. Kentigern later returned to Scotland. He is Glasgow's patron saint and is thought to be buried in Glasgow Cathedral.

**Kenton, Stan** (1912-1979), was an American jazz bandleader, pianist, composer, and arranger. He was known for his experiments in big-band jazz. For example, Kenton changed the size and concept of his band many times. Some of his larger orchestras combined elements of modern jazz and classical music. Kenton was also one of the first bandleaders to combine jazz and Afro-Cuban rhythms. His band introduced the *mellophonium*, a brass instrument with a range between that of the trumpet and trombone.

Kenton composed many works for his band, including "Artistry in Rhythm" and "Eager Beaver." He helped establish the careers of such famous jazz musicians as alto saxophonists Lee Konitz and Art Pepper, trumpeter Maynard Ferguson, drummer Shelly Manne, and trombonist Kai Winding.

Stanley Newcomb Kenton was born in Wichita, Kansas. He became active in jazz in the mid-1930's and organized his first band in 1941.

See also **Jazz** (New directions in jazz).

**Kentucky** is a state in the Southern United States. Rich tobacco and champion racehorses have long been sym-



Wood engraving (1933) Rockwell Kent

**Rockwell Kent's Drifter**, above, is typical of the artist's black-and-white wood engravings. Kent's style features bold patterns, simplified settings, and dramatic characterizations

## Facts in brief

**Population:** 3,698,969

**Area:** 104,660 km<sup>2</sup>

**Climate:** Average July temperature—25° C. Average January temperature—1° C.

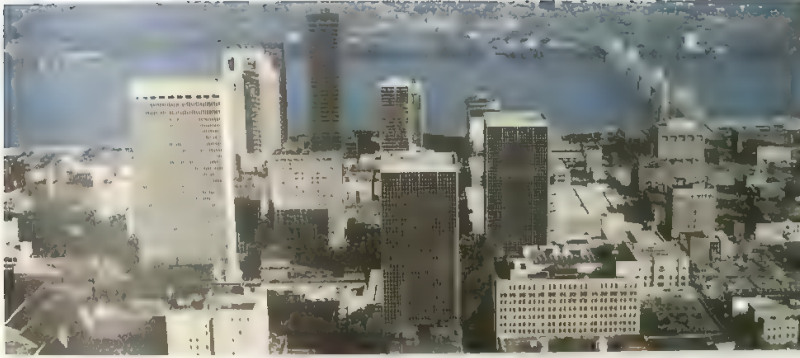
**Elevation:** Highest—Black Mountain, 1,263 m. Lowest—Mississippi River in Fulton County, 78 m.

**Largest cities:** Louisville Lexington Owensboro Covington

**Chief products:** Agriculture—tobacco horses beef cattle milk, maize hay Manufacturing—transportation equipment, chemicals, electrical equipment, machinery, food products, tobacco products, printed materials. Mining—coal

**Origin of name:** Cherokee Indian word

**Nickname:** Bluegrass state.



**Louisville** is the largest city in Kentucky. It lies on the southern shore of the Ohio River and provides Kentucky with a major river port.

bols of Kentucky. Each May, the Kentucky Derby horse race in Louisville draws national attention.

Kentucky is a leading producer of burley tobacco, coal, and bourbon whiskey. Most of the U.S. gold reserves are stored in underground vaults at Fort Knox. Frankfort is the state capital.

**Land.** The Appalachian Plateau, or Cumberland Plateau, of eastern Kentucky is part of a region that extends from New York to Alabama. The plateau, a major coal producing region, is also called the Eastern Coal Field.

The Bluegrass Region covers the north-central part of Kentucky. The grass in the region has dusty blue blossoms. Farmers there grow large maize and tobacco crops. The Bluegrass Region has Kentucky's largest cities, most of its horse farms, and much of its manufacturing.

The Pennyroyal Region, also known as the Southwestern Mississippian Embayment, stretches along much of Kentucky's southern border. The famous Mammoth Cave is located in this region.

The Western Coal Field is a region of sharply rolling land in northwestern Kentucky. About half the state's coal reserves lie in this region.

The Jackson Purchase Region is a small area in the southwest. U.S. General Andrew Jackson helped purchase the area from the Indians in 1818. The area has wide flood plains covered by cypress swamps and oxbow lakes.

**Economy.** Manufacturing is Kentucky's single most important economic activity. The chief centres of manu-

facturing are Covington, Lexington, and Louisville. Kentucky's leading manufactured products include motor vehicle equipment, chemicals, and electrical equipment.

Lexington is a national centre of wholesale trade for tobacco and race horses. Louisville is a major trading port on the Ohio River. The Louisville area is also an important centre of retail trade and finance.

The breeding and selling of thoroughbred horses account for the largest source of annual livestock income—about two-fifths. Most of the thoroughbreds come from the bluegrass pastures near Lexington. Kentucky's chief mineral product is coal.

**History.** As long as 15,000 years ago, Indians probably lived in what is now western Kentucky. Early white explorers found many different tribes in the region.

In 1750, Thomas Walker, a pioneer scout, made the first thorough exploration of Kentucky. James Harrod and Daniel Boone led settlers into the region during the 1770's. Kentucky became a county of Virginia in 1776, and a U.S. state in 1792.

Kentucky stayed in the Union during the American Civil War (1861-1865), but many Kentuckians favoured the South. The state was affected by the depression that hit the South after the war. From 1904 to 1909, farmers in western Kentucky broke a tobacco-buying monopoly, during a series of raids known as the Black Patch War.

Strip mining, a method of coal mining that causes soil erosion and water pollution, came under attack during the 1970's. In 1978, a federal law went into effect that requires strip mine owners to restore the land.

**Kentucky Derby** is the most famous horse race in the United States. This 1¼-mile (2.01-kilometre) race for 3-year-old horses is held annually on the first Saturday of May at Churchill Downs race track in Louisville, Kentucky.

The Kentucky Derby has been held every year since 1875. Since the first race, the Derby has become one of the richest and most popular sports events in the United States. The Derby, the Preakness, and the Belmont Stakes form the Triple Crown of U.S. horse racing.

A group headed by M. Lewis Clark established Churchill Downs in 1874. They built the track on a farm owned by a family named Churchill. The track opened on May 17, 1875, and held the first Kentucky Derby on its opening programme. Clark modelled the race after the English Derby, held every year in Epsom, England. From 1875 to 1895, horses in the Kentucky Derby raced 1½ miles (2.41 kilometres). In 1896, the race was shortened to 1¼ miles.



**Kentucky** is a state in the Southern United States. The Ohio River forms Kentucky's northern border.





The Kenyan countryside is the home of many kinds of wild animals. Zebras feed on grass near the country's southern border, left. Majestic Kilimanjaro, Africa's tallest mountain, rises above clouds in Tanzania, across the border.

## Kenya

**Kenya** is a country on the east coast of Africa. It extends from the Indian Ocean deep into the interior of Africa. The equator runs through the centre of Kenya.

Kenya's coastal area is a hot and humid tropical region. Beautiful sandy beaches, lagoons and swamps, and patches of rain forest line the coast. Inland, a vast plains area stretches over about three-fourths of Kenya. Its extremely dry climate and generally poor soil support only scattered plant life. But a highland in the southwest receives enough rainfall and has enough fertile soil to support extensive farming. Most of Kenya's people live in the highland.

A spectacular variety of fascinating wild animals live in Kenya. This wildlife—which includes elephants, giraffes, lions, rhinoceroses, and zebras—attracts thousands of tourists to Kenya each year. To protect the country's wildlife, the government has set up several national parks and game reserves, which are among the finest in Africa. Hunting is illegal. But poachers continue to kill such animals as elephants for their tusks and rhinoceroses for their horns.

Almost all of Kenya's people are black Africans. Most of the people live in rural areas and farm the land and rear livestock for a living. But each year, many rural people move to Kenya's cities and towns, and so these urban areas are growing rapidly. Nairobi is Kenya's capital and largest city.

Great Britain ruled Kenya from 1895 until it became an independent nation in 1963. During this period, the British greatly influenced both the economic and cultural life of Kenya. Since independence, the leaders of Kenya have taken steps to emphasize the African heritage of the nation.

### Government

Kenya is a republic. Its Constitution, adopted in 1963, grants the people such rights as freedom of speech and



**Kenya's flag and coat of arms** were adopted in 1963. The flag's black stripe represents the Kenyan people, the red stripe their struggle for independence, and the green stripe agriculture. Its shield and spears stand for the defence of freedom. The coat of arms bears the Swahili word for *pulling together*.



**Kenya** lies in eastern Africa. It borders the Indian Ocean. The equator runs through the middle of the country

religion. Kenyan citizens 18 years of age or older may vote in elections.

**National government.** Kenya is headed by a president who is assisted by about 20 Cabinet ministers. Each Cabinet minister heads an executive department of the government. The country's vice president is a member of the Cabinet. A National Assembly that has 200 voting members makes Kenya's laws.

Kenya's voters elect the president and 188 members of the National Assembly to five-year terms. The president appoints 12 Assembly members and selects the vice president and the other Cabinet ministers. Cabinet members are normally selected from among the members of the Assembly. Candidates for the presidency must run for a seat in the National Assembly at the same time as they run for the office of president. To become president, one must win both elections.

**Local government.** Kenya is divided into seven provinces and the district of Nairobi for purposes of local government. The provinces are divided into districts and subdistricts.

A commissioner, who is responsible to the president, heads each province and district of Kenya. Local chiefs head the subdistricts. They are responsible to the provincial commissioners.

A city commission carries out the operations of the government of the Nairobi district. Councils help govern rural counties and cities and towns within Kenya's districts.

**Politics.** From 1982 to 1991, only one political party—the Kenya African National Union (KANU)—was allowed to operate in Kenya. Therefore, the people who won the party's primary elections were certain to be elected in the general elections. But in late 1991, other political parties were legalized. The largest parties after KANU are the Democratic Party and the two factions of the Forum for the Restoration of Democracy (FORD-Asili and FORD-Kenya).

**Courts.** The Court of Appeals is Kenya's highest court. It hears appeals from lower courts and cases involving the constitutionality of laws. Kenya's lower courts include resident magistrate courts and district magistrate courts.

**Armed forces** of Kenya include an army, an air force, and a small navy and coastal patrol. About 14,000 people serve in the armed forces. All service is voluntary.

### Facts in brief about Kenya

**Capital:** Nairobi.

**Languages:** *Official*—English; *National*—Swahili.

**Official name:** Jamhuri ya Kenya (Republic of Kenya).

**Area:** 580,367 km<sup>2</sup>. *Greatest distances*—north-south, 1,030 km; east-west, 901 km. *Coastline*—457 km.

**Elevation:** *Highest*—Mount Kenya, 5,199 m above sea level.

*Lowest*—sea level along the coast.

**Population:** *Estimated 1996 population*—28,794,000; density, 50 people per km<sup>2</sup>; distribution, 72 per cent rural, 28 per cent urban. *1989 census*—21,400,000. *Estimated 2001 population*—33,842,000.

**Chief products:** *Agriculture*—bananas, beef, cassava, coffee, maize, pineapples, pyrethrum, sisal, sugar cane, tea, wheat. *Manufacturing*—cement, chemicals, light machinery, textiles, processed foods, petroleum products.

**Money:** *Currency unit*—Kenya shilling. One shilling = 100 cents.



Nairobi is the capital and largest city of Kenya. Its city centre, above, has many modern buildings.

### People

**Population and ethnic groups.** For Kenya's total population, see the *Facts in brief* table with this article. The country's population is growing at one of the world's fastest rates—about 3½ per cent a year. About three-quarters of Kenya's people live in rural areas. Nairobi, Kenya's largest city, has about 1,162,000 people.

About 99 per cent of Kenya's population is made up of black Africans. Other population groups, in order of size, are Asian Indians; Europeans, chiefly British; and Arabs.

Kenya's black Africans belong to about 40 different ethnic groups. The largest group, the Kikuyu (or Gikuyu), make up about 20 per cent of Kenya's population. Four other ethnic groups—the Kalenjin, Kamba, Luhya, and Luo—each make up between 10 and 15 per cent of the population.

Kenya's ethnic groups are divided by separate languages or dialects, and, in many areas, by differing ways of life. Differences in economic and social development have sometimes led to friction between groups. But since independence, the Kenyan government has made progress toward overcoming ethnic divisions and giving the people a sense of national unity.

**Languages.** Most of Kenya's ethnic groups have their own local language or dialect. Some Kenyans know only their local language. However, large numbers of the people know Swahili, as well as their local language. Swahili, Kenya's national language, is widely used for communication between people of different ethnic groups. Most educated Kenyans also know English, the official language.

**Way of life.** Most of Kenya's rural people live on small farm settlements, growing crops and rearing livestock for a living. Many of these rural farm families must struggle to produce enough food for their own use. But others grow enough to offer their extra produce for sale. Many Kenyan farmers hold part-time jobs to add to their income. Some of them work as blacksmiths, carpenters, shoemakers, or tailors, or in other trades. Others work part time on large farm estates—especially coffee.



Cities and towns

Athi River*	9,760	D	3
Bungoma	25,161	C	1
Busia*	24,857	C	2
Eldoret	59,501	C	2
El Wak	8,044	A	5
Embu	15,986	C	3
Garissa	14,076	C	4
Homa Bay	7,489	C	1
Isiolo	11,331	C	2
Kakamega	32,025	C	2
Kericho	29,603	C	2
Kilifi	5,866	D	4
Kisii	29,661	C	2
Kisumu	152,643	C	2
Kitalale	28,317	B	2
Lamu	8,194	D	3
Lodwar	6,444	A	2
Machakos	84,320	D	3
Malindi	23,275	D	4
Mandera	13,126	A	5
Maralal	10,230	B	3
Marsabit	8,739	B	3
Meru	70,439	C	3
Mogori	6,236	C	1
Mombasa	442,369	E	4
Moyale	7,478	A	4
Muranga	15,291	C	3
Nairobi	1,162,189	C	3
Narvasha	11,491	C	2
Nakuru	92,851	C	2
Nanyuki	18,966	C	3
Narok	5,680	C	2
Nyahururu			
Falls	11,277	C	2
Nyeri	35,753	C	3
Thika	41,324	C	3
Voi	7,397	D	3
Wajir	6,364	B	4
Webuye*	17,963	C	2

Physical features

Aberdare National Park	C	3
Athi River	D	3
Cherangany Hills	B	2
Great Rift Valley	B	2
Lake Turkana		
(Lake Rudolf)	A	2
Lake Victoria		
(Victoria Nyanza)	C	1
Marsabit Game Reserve	B	3
Mau Escarpment		
(Steep slope)	C	2
Mount Elgon	B	2
Mount Kenya	C	3
Mount Kulal	B	3
Tana River	C	4
Tsavo National Park	D	3

\*Does not appear on map; key shows general location.  
Sources: 1965 official estimates for Mombasa and Nairobi, 1979 census for other places.



fee and tea plantations—that are owned by wealthy land-owners.

About 3 per cent of Kenya's rural people are nomads who rear livestock for a living. These people move from place to place in search of grazing land and water for their animals. They rely on their animals for food, and they judge a person's wealth by the number of animals owned.

The best-known of the Kenyan nomads are the Masai (or Maasai). These tall, slender people are famous for their skill in the use of weapons and their strongly independent ways.

Kenya's rural people value friendships in their communities. Although they must work hard to make a living, most rural Kenyans find time for regular social visits to their neighbours.

Each year, many rural Kenyans move to cities and towns to find jobs. Most of the country's urban people work in shops, factories, or business or government offices. Kenyans who move to cities and large towns find they must adjust to the fast pace, regular work schedules, and impersonal relations that are typical of those urban areas. But most urban Kenyans keep close ties with their rural friends and relatives through regular visits and letters.

Kenyans place much value on large families. Many Kenyan families have six or more children, and so the women are kept busy with child care. In addition, almost all women of Kenya's farm families take part in the planting and harvesting of crops. Some also work part time on large farm estates. The Kenyan government recognizes the equality of men and women, and it encourages women to become educated and achieve high-paying jobs. Some women have done so. But the vast majority are too busy with child care and farm work to advance to high positions.

Kenya's Arabs, Europeans, and Indians live chiefly along the coast and in Nairobi. Most of them own businesses or hold high-paying professional jobs.

**Housing.** Most rural Kenyans live in small houses with thatched roofs, walls made of mud or bundles of branches, and dirt floors. A relatively small number of urban people live in similar dwellings. In the cities, however, these kinds of houses are crowded together in slum areas.

Kenya's cities also have many modern houses made of stone and cement. These dwellings range in style from simple, inexpensive units for working-class people to expensive, large houses and apartment buildings for the wealthy.

**Clothing.** Most Kenyan males wear a cotton shirt and shorts or trousers. Some city men wear Western-style business suits. Most females wear cotton dresses, or skirts and blouses. Some rural Kenyans, especially nomads, wrap a one-piece cloth around their bodies for clothing.

**Food and drink.** Maize is the basic food of the people. Kenyans often grind maize into a porridge and eat it with a stew made from vegetables. They add fish or meat to the stew when they can afford to do so. Beer is a popular beverage in Kenya.

**Recreation.** Dancing is a favourite form of recreation throughout Kenya. Most of the people enjoy both dancing and watching dance performances. Films are also popular in Kenya. City people attend cinemas, and mobile units bring films to rural areas on a regular basis.

Soccer ranks as Kenya's most popular sport. Children and adults throughout the country play the game for fun, and soccer matches between organized teams draw large crowds. Athletics is another favourite sport. Kenyan runners have won many medals in international competition.

**Religion.** More than 65 per cent of Kenya's people are Christians. About two-thirds of the Christians are Protestants, and about one-third are Roman Catholics. About 25 per cent of the people practise traditional African religions. These faiths are based on the belief in one supreme being and many spirits that influence events. About 5 per cent of Kenya's people are Muslims.

**Education.** Kenyan children are not required to attend school by law. But large numbers of Kenyan parents value education as a key to a better life for their children. About 80 per cent of the children receive at least a primary school education.

Since independence, Kenya's government has greatly increased the number of schools in response to demands for educational opportunities by the people. Today, the government operates schools in most parts of the country. In addition, groups of private citizens have set up schools in many places that have no government schools. These schools are called self-help, or *harambee*, schools. *Harambee* is a Swahili word that



A traditional dance performed by members of the Masai ethnic group, above, is hundreds of years old. These dancers, like many other Masai people, wrap a one-piece cloth around their bodies for clothing.

means *pulling together*. Education is free for students in government primary schools. The students in secondary schools and all students in *harambee* schools must pay tuition fees.

Kenya has three national schools of higher education. They are the University of Nairobi and Kenyatta University in Nairobi, and Moi University in Eldoret. Several private colleges and institutes of higher education also operate in Kenya.

**The arts.** Many Kenyans carve statues and make jewellery for their personal use. They also decorate their kitchen and other household utensils in an artistic manner. Kenyans have created highly artistic dances that are performed during such ceremonies as birth celebrations, marriages, and funerals. Such traditional dances are also part of national holiday celebrations, and vari-

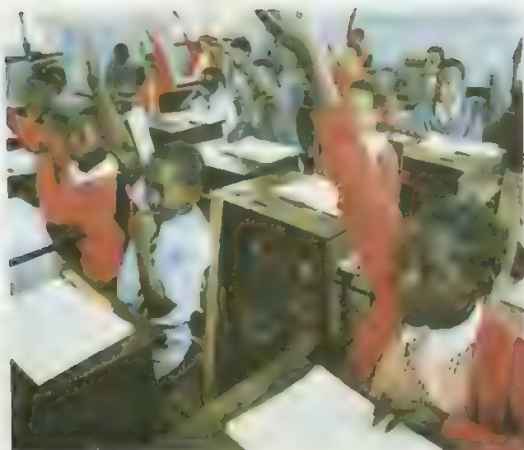


Apartment buildings provide housing for many urban Kenyans. The building above, in Nairobi, is next to a grassy area, where boys play soccer.



Rural settlements with thatch-roofed buildings dot Kenya's countryside. Most of the people live in rural areas. Rural Kikuyu women care for their young children, above. The Kikuyu make up Kenya's largest ethnic group.





**Education** has received increased emphasis in Kenya since the country became independent in 1963. Many new schools have been built in the country since that time.

ous ethnic groups compete with one another in traditional dance contests.

### Land and climate

Kenya covers 580,367 square kilometres. The land includes three distinct regions: (1) a tropical coastal area, (2) a generally dry plains area, and (3) a fertile highland.

**The coastal area** is a narrow strip of land along the Indian Ocean. The region has beautiful beaches, lagoons, mangrove swamps, cashew trees, coconut palms, and a few small rainforests. The climate of the coastal area is hot and humid all year round. Temperatures average about 27° C. Rainfall totals about 100 centimetres annually. Much of the soil near the coast is fertile, especially in the south. Mombasa, Kenya's second largest city and its chief port, lies along the coast.

**The plains** stretch inland from the coastal area and cover about three-quarters of Kenya. The plains form a series of plateaus, rising from near sea level at the coast to about 1,200 metres inland. Bushes, shrubs, and grasses grow on the plains. The area is the driest part of Kenya. Much of it receives only 25 to 75 centimetres of rain yearly. A large northern region is desertlike, receiving less than 25 centimetres of rain a year. Average temperatures vary with altitude, ranging from about 27° C at low levels to about 16° C at the highest levels.

The plains area is the most thinly populated part of Kenya. It has no large towns or cities. Groups of nomads roam the region in search of grazing land and water for their livestock. The soil is too dry for extensive farming.

**The highland** lies in southwestern Kenya. It covers a little less than a quarter of the country. It is a region of mountains, valleys, and plateaus. Mount Kenya, at its eastern end, is the highest point in the country. It rises 5,199 metres above sea level. Only one African mountain—Kilimanjaro in Tanzania—is higher. These mountains are *extinct* (dead) volcanoes. Both lie close to the equator, but they are capped by snow and *glaciers* (large bodies of ice).

Forests and grasslands cover much of the highland. The area has by far the largest part of Kenya's fertile soil.

The soil and a good climate for agriculture make the highland Kenya's chief farming region. Temperatures average about 19° C, and yearly rainfall ranges from 100 to 130 centimetres. About 75 per cent of Kenya's people live in the highland. Nairobi, Kenya's largest city, is there.

The Great Rift Valley divides the highland into eastern and western sections. This deep valley, which cuts through much of eastern Africa from north to south, has some of the continent's most fertile soil.

**Rivers and lakes.** The Athi and the Tana are Kenya's chief rivers. Both flow from the highland to the Indian Ocean. The eastern part of the Athi is called the Galana. Lake Turkana (also called Lake Rudolf) covers 6,405 square kilometres in the far north. Its northern tip extends into Ethiopia. Lake Victoria, Africa's largest lake, lies at the western end of Kenya. Most of the lake, known as Victoria Nyanza in Kenya, is within Tanzania and Uganda. The lake covers 69,484 square kilometres, of which about 3,780 square kilometres is in Kenya.

**Animal life.** Kenya is world-famous for its animal wildlife. The country's plains and—to a lesser extent—its highland are the home of large numbers of fascinating animals. Antelope, buffaloes, cheetahs, elephants, giraffes, leopards, lions, rhinoceroses, and zebras roam open spaces. Crocodiles and hippopotamuses are found where water is plentiful. Numerous large birds, such as eagles, ostriches, and storks, and dozens of species of small, brightly coloured birds also live in Kenya.

Through the years, people have killed large numbers of wild animals in Kenya and have endangered some species. Many of the animals were killed legally by people who had hunting licences. But most were victims of *poachers* (people who hunt illegally). In the mid-1900s, Kenya's government established a number of national parks and game reserves to protect animals from poachers. In 1977, the government outlawed hunting altogether to protect the animals. Today, thousands of tourists visit the national parks and game reserves each year to see and photograph the wild animals that live there.



**Kenya's highland** is a region of mountains, valleys, and plateaus in the southwestern part of the country. Its fertile soil and good climate make it Kenya's chief farming region. This man is working on a tea plantation in the highland.



A motor-vehicle assembly plant near Nairobi, above, is one of many factories that have been established in Kenya since the 1960's. The factories have provided many jobs for Kenyans.

### Economy

Kenya has a developing economy. Agriculture is the chief economic activity. It accounts for about a third of Kenya's economic production and employs more people than any other activity. Manufacturing is growing in importance in Kenya. Together, manufacturing and the construction industry account for about a fifth of the economic production. Service industries, including finance, government, tourism, and wholesale and retail trade, account for most of the rest. Mining has little importance in Kenya. Kenya's economy operates as a free enterprise system. But the government places many regulations on businesses.

**Agriculture.** Agricultural activity in Kenya is divided about equally between the production of *cash crops* and *subsistence crops*. Cash crops are products grown for sale. Subsistence crops are those grown by farmers for their own use.

Coffee is Kenya's chief cash crop and its single most important source of income. Other cash crops include cashews; cotton; pineapples; sugar cane; tea; pyrethrum, which is used to make insecticide; and sisal, used to make fibre. Maize is the main subsistence crop. Much of it is dried and ground into a flour called *posho*. Other subsistence crops include bananas, beans, cassava, potatoes, sweet potatoes, and wheat. All the subsistence crops, as well as beef and milk, are also sold on a limited basis.

Most Kenyan farmers own the land they work, or rent it from the government. The majority of farms are small. But Kenya has a number of large farm estates where cash crops—especially coffee and tea—are grown. The small farms range in size from less than 1 hectare to 20 hectares. The large estates cover from about 40 hectares to more than 2,000 hectares. Most Kenyan farmers use old-fashioned equipment in their work. However, the country's use of modern equipment has been growing since the 1960's.

**Manufacturing.** Kenya's chief manufactured products include cement, chemicals, household utensils,

light machinery, motor vehicles, paper and paper products, and textiles. Food processing is a major industrial activity in Kenya. A petroleum refinery at Mombasa refines oil that has been produced in other countries. Nairobi and Mombasa are Kenya's most important industrial centres.

**Tourism** contributes more income to Kenya's economy than any other single economic activity except the production and sale of coffee. More than 650,000 tourists visit Kenya annually to enjoy its scenic coastal area and, especially, to view and photograph its wildlife on safaris. The money that is spent by tourists contributes more than 300 million U.S. dollars annually to Kenya's economy. Tourist activities provide employment for about 40,000 Kenyans.

**Mining.** Kenya has few valuable minerals. Mining activity centres on the production of soda, fluorspar, salt, and gemstones.

**Foreign trade.** Coffee, tea, and petroleum products are Kenya's main exports. Other exports include cement, flowers, meat, pineapples, and sisal. Imports include industrial machinery, iron and steel, and petroleum. Kenya's chief trading partners are Great Britain, Japan, Germany, and the United States.

**Transportation and communication.** Railways and paved roads connect Kenya's major cities. But most of the country's roads are unpaved. Less than 1 per cent of all Kenyans own a car. Many people travel in buses or in crowded taxis called *matatus*. International airports operate at Mombasa and Nairobi. Mombasa is the main seaport.



**Tourism** is a major economic activity in Kenya. Thousands of tourists visit the country each year to see and photograph wild animals. The giraffes above roam one of Kenya's game reserves.



The Voice of Kenya, a government-owned network, broadcasts radio and television programmes in local languages, Swahili, and English. The country has an average of about 1 radio for every 7 people. But less than 1 per cent of Kenya's people own a television set. Three daily newspapers are published in Kenya—two in English and one in Swahili.

### History

**Early days.** Scientists have found some of the earliest-known remains of human beings in the Great Rift Valley of eastern Africa, including parts of Kenya. Studies conducted by the Leakeys—a family of anthropologists—and others have led scientists to believe that people may have first lived in the area about 2 million years ago (see *Leakey family*). Little is known about the lives of these people.

Starting about 3,000 years ago, various peoples from other parts of Africa began moving into the Kenya area. These groups became the ancestors of today's Kenyans. They included farmers, herders, and hunters.

**Arab and Portuguese control.** Kenya's location along the Indian Ocean made it a stopping place for many early seafaring peoples, including Greeks, Romans, and Arabs. Arabs began visiting the coast about 2,000 years ago. In the A.D. 700's, Arabs established coastal settlements. They soon gained control of the coastal area, and they traded extensively with the people of Kenya.

In 1498, Vasco da Gama of Portugal sailed around the Cape of Good Hope and reached the Kenyan coast. The Portuguese took control of the coastal area from the Arabs in the early 1500's. They profited heavily from trade in Kenya. But the Arabs defeated the Portuguese in the late 1600's and regained control of the area. The Arabs and Portuguese had little influence over the people of the interior of Kenya.

**British rule.** In 1887, a private British business association leased a part of the Kenya coast that was controlled by the sultan of Zanzibar. It received a government charter as the Imperial British East Africa Company in 1888. But the association lacked the money needed to develop the area.

In 1895, the United Kingdom (UK) government took over the area. The UK soon extended its control to all of Kenya. Kenya became known as British East Africa. In 1901, the UK completed a railway between Mombasa and Lake Victoria. The UK government encouraged UK citizens and other Europeans to settle in Kenya. Before long, many Europeans had established large farms there. They hired Africans to work for them. United

Kingdom officials ruled Kenya, and the Africans had no voice in the government. The British also set up schools, patterned after those in the UK.

**Opposition to the British.** During the 1940's, many Kenyan Africans began opposing UK rule. The chief opposition came from Kikuyu people of central Kenya, many of whom lived in poverty under the British. In 1944, the Kikuyu and other Kenyans formed a political party called the Kenya African Union (KAU) to organize their opposition. Jomo Kenyatta, a Kikuyu, became the party's leader in 1947.

In the late 1940's, a secret movement developed among Kikuyu members of the KAU. Europeans and some Africans called the movement *Mau Mau*. The movement sought greater unity among Kenya's Africans and demanded new UK policies designed to improve the lives of the Africans. The UK government took military action against the movement in 1952, after members, called nationalists, began committing terrorist acts. The UK government jailed thousands of the nationalists in detention camps, and widespread fighting broke out between the government and the nationalists. In 1953, Kenyatta was convicted of leading the movement, and was jailed in a remote part of Kenya. The fighting lasted until 1956. According to official figures, about 11,500 nationalists, 95 Europeans, 29 Asians, and about 2,000 Africans who supported the government were killed in the fighting.

During the late 1950's, all of Kenya's ethnic groups began demanding African rule. The UK agreed to the demand, and, in February 1961, elections were held to choose Africans for a new parliament. Kenyatta's political party, the Kenya African National Union (KANU), won the elections. But the party refused to take office unless Kenyatta was released by the British. The British did not release him until August 1961. As a result, KANU's rival party, the Kenya African Democratic Union (KADU), formed a government.

**Independence.** Kenya gained independence from the United Kingdom on Dec. 12, 1963. Its new Constitution provided for a constitutional monarchy. The KANU Party won elections that were held to choose a government for the new nation. Kenyatta became the country's prime minister. In 1964, Kenya became a republic, and Kenyatta's title was changed to president.

**Building the new nation.** Following independence, Kenya moved rapidly to replace the British colonial economic and cultural systems. The government took over many farms and businesses owned by non-Africans, and sold or rented them to Africans. Non-Africans who agreed to become Kenyan citizens were allowed to keep their property. The Kenyan government rapidly expanded the state school system. In addition, many groups of private citizens established their own schools. At the time of independence, most Kenyans had more loyalty to their ethnic group than to the national government. Also, divisions existed between many ethnic groups. Since independence, Kenya's government has made some progress in promoting national pride among the people and reducing disunity.

Politically, Kenya became a one-party state in 1964, when the KADU members dissolved their party and joined KANU. A new party, the Kenya People's Union (KPU), was formed in 1966. But President Kenyatta dis-

### Important dates in Kenya

- c. 1000 B.C. Various African people began settling in Kenya.
- A.D. 700's Arabs gained control of Kenya's coastal area.
- c. 1500-1700 The Portuguese ruled the coastal area.
- 1895 Kenya became a colony of the United Kingdom.
- 1940's Kenyans began a movement against British rule.
- 1963 Kenya gained independence from the United Kingdom.
- 1978 President Jomo Kenyatta, Kenya's first leader, died. Vice President Daniel arap Moi succeeded him as president.
- 1982 KANU officially became Kenya's only legal political party.
- 1991 Kenya's Constitution was amended to allow for a multi-party system.

solved it in 1969, after accusing many of its leaders of antigovernment activities. Kenya again became a one-party state. However, many rivalries developed among the members of the KANU Party. They centred on the question of who would succeed Kenyatta.

A border dispute led to fighting between Kenya and neighbouring Somalia shortly after independence. The fighting ended in 1967. Also in 1967, Kenya, Tanzania, and Uganda formed the East African Community. This organization was created to promote trade among the three nations. It provided for the common administration of such facilities as airports and railways. However, strained relations among the member nations led to the end of the organization's operations in 1977.

**Kenya today.** Although Kenya has made much economic progress since independence, it still faces major problems. Only about a fifth of its land is suitable for farming, and its population is growing at a rapid rate. The need to find ways to feed the growing population is perhaps the country's chief challenge.

Since independence, Kenya has greatly increased its industry and tourist trade to lessen its heavy economic reliance on agriculture. Some of the capital for new industries has been provided by foreign investors. Some Kenyans object to foreign investments because they believe the investments give outsiders too much influence in their country. They also object to the emphasis on tourism, because tourism makes Kenya rely on spending by outsiders. Some Kenyans compare the new economic trends to the colonialism of earlier days. But others support the trends as ways of improving Kenya's economy and ending the reliance on agriculture.

President Kenyatta died in August 1978. Vice President Daniel T. arap Moi succeeded Kenyatta as president. Although KANU had become Kenya's only political party in the 1960's, other parties were not banned by law. But in 1982, Kenya's leaders changed the Constitution to make KANU the only legal party. In 1990, demonstrations and riots broke out in Nairobi and other cities in support of a return to the multiparty system. In 1991, the Constitution was amended to allow for a multiparty system. Multiparty elections for the president and National Assembly were held in late 1992. Moi won the presidential election and KANU won the majority of seats in the Assembly.

#### Related articles in *World Book* include:

Africa (pictures)	Kikuyu	Mau Mau
Clothing (pictures)	Lake Turkana	Mombasa
Great Rift Valley	Lake Victoria	Mount Kenya
Kenyatta, Jomo	Leakey family	Nairobi

#### Outline

##### I. Government

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| A. National government | D. Courts       |
| B. Local government    | E. Armed forces |
| C. Politics            |                 |

##### II. People

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| A. Population and ethnic groups | F. Food and drink |
| B. Languages                    | G. Recreation     |
| C. Way of life                  | H. Religion       |
| D. Housing                      | I. Education      |
| E. Clothing                     | J. Arts           |

##### III. Land and climate

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| A. The coastal area | D. Rivers and lakes |
| B. The plains       | E. Animal life      |
| C. The highland     |                     |

#### IV. Economy

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| A. Agriculture   | E. Foreign trade                    |
| B. Manufacturing | F. Transportation and communication |
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#### V. History

#### Questions

- Why do most of Kenya's people live in the southwest part of the country?
- Why are primary elections more important than general elections in Kenya?
- What is Kenya's largest ethnic group?
- Who were the Mau Mau?
- What are *harambee* schools?
- What economic and social changes were made by Kenya's government after independence?
- What was the East African Community?
- How does Kenya's wildlife aid the country's economy?
- What are Kenya's chief crops?
- What is the highest point in Kenya?

**Kenya, Mount.** See **Mount Kenya.**

**Kenyatta, Jomo** (1892-1978), was the first president of Kenya. He took office in 1964 when the country became a republic and served until his death. As president, Kenyatta developed Kenya's economy and tried to unite its population of Africans, Arabs, Asians, and Europeans. He had been a leading spokesman for the cause of African nationalism since the late 1920's.

Born near Nairobi, Kenyatta was educated by Church of Scotland missionaries. From 1931 to 1946, he lived in Europe, mostly in England. In 1953, he was convicted of leading the so-called Mau Mau movement (see **Kenya** [History]). He denied the charge, but was imprisoned and then restricted to a remote area of Kenya until 1961. In 1963, when Kenya gained its independence, Kenyatta became the nation's first prime minister. Kenyatta wrote the book *Facing Mount Kenya* (1938).

**Kepler, Johannes** (1571-1630), a German astronomer and mathematician, discovered three laws of planetary motion. The English scientist Sir Isaac Newton later used Kepler's three laws to arrive at the principle of universal gravitation (see **Gravitation**). Newton's theory of gravitation. Kepler's laws are:

- (1) Every planet follows an oval-shaped path, or *orbit*, around the sun, called an *ellipse*. The sun is located at one focus of the elliptical orbit.
- (2) An imaginary line from the centre of the sun to the centre of a planet sweeps out the same area in a given time. This means that planets move faster when they are closer to the sun.
- (3) The time taken by a planet to make one complete trip around the sun is its *period*. The squares of the periods of two planets are proportional to the cubes of their mean distances from the sun.

Kepler was born in Weil (near Stuttgart), Germany, and graduated from the University of Tübingen. He accepted an offer to teach at the Lutheran school in Graz.



Jomo Kenyatta



Austria. But he left Graz rather than undergo compulsory conversion to Roman Catholicism. While he was seeking another post, he formed an association with Tycho Brahe, which shaped the rest of his life. Brahe, the greatest astronomical observer before the introduction of the telescope, needed an assistant, and Kepler joined him at his observatory in Prague, in what is now the Czech Republic. After Brahe died, Rudolf II, the Holy Roman emperor, appointed Kepler to be Brahe's successor as imperial mathematician.

Kepler made his most significant discoveries trying to find an orbit to fit all Brahe's observations of the planet Mars. Earlier astronomers thought a planet's orbit was a circle or a combination of circles. However, Kepler could not find a circular arrangement to agree with Brahe's observations. He realized that the orbit could not be circular and resorted to an ellipse in his calculations. The ellipse worked, and Kepler destroyed a belief that was more than 2,000 years old.

Kepler was the first astronomer openly to uphold Copernicus' theories. He also made important contributions to the science of optics. For example, he helped explain how lenses work. In addition, he showed that the eye functions like a camera when images are projected through the eye's lens onto the retina (see *Eye* [How we see]).

See also *Planet* (Orbiting the sun); *Copernicus*, Nicolaus.

**Kerala** is a small, densely populated state in India. It occupies a long strip of land along the southwest coast of India. Kerala is relatively poor in natural resources but rich in scenic beauty. It has a long literary and artistic tradition.

Kerala is famous for its poets and musicians, its traditional dance forms, and its distinctive architecture. Craftworkers in Kerala continue the ancient arts of woodcarving and wall-painting.

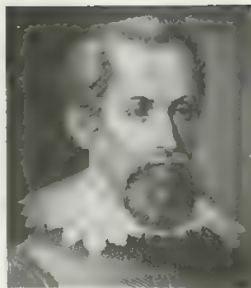
### People and government

**People.** Although Kerala accounts for only 1 per cent of the total area of India, it contains about 3 per cent of the country's population. The population density of the state is about 655 people per square kilometre, three times the national average. About 16 per cent of the people live in the cities. Most of the others live in large, semiurban villages.

Between 1961 and 1971, the population grew by more than 25 per cent. But in the 1970s, the growth was only 19 per cent, because of an efficient family planning campaign.

In Kerala, women are better educated than women in many other parts of India, and enjoy a highly respected position in society. In the past, it was common for a woman to be the head of a family.

**Religion.** Hindus form the largest religious group in Kerala. They make up about half the population. Chris-



Johannes Kepler

### Facts in brief about Kerala

**Capital city:** Trivandrum.

**Largest cities:** Cochin, Trivandrum, Calicut, Alleppey.

**Area:** 38,863 km<sup>2</sup>.

**Population:** 1991 census—29,011,237.

**Chief products:** *Agriculture*—cashew nuts, coconuts, coffee, fruit, eggs, millet, pepper, rubber, tapioca, tea. *Fishing*—many types of fish, especially shrimp. *Forestry*—bamboo, rosewood, teak. *Manufacturing and processing*—cement, chemicals, fertilizer. *Mining*—lignite (brown coal), graphite, ilmenite, iron ore, mica, limestone, rutile.

tians account for about a quarter of the population. There is a large Muslim minority. A tiny number of people are Buddhists, Jains, or Jews.

The people of Kerala are known for their religious tolerance. The Hindu majority has lived peacefully alongside the Muslims and other religious groups for hundreds of years. In 1936, Travancore opened its Hindu temples to all Hindu worshippers regardless of their *caste* (social status). The city of Cochin followed Travancore's example in 1948. Temples remain closed to non-Hindus.

**Languages.** Most of Kerala's inhabitants speak Malayalam, a Dravidian language (see *Dravidians*). Some people speak Tamil or Kannada (Kannarese), Dravidian languages also spoken in the neighbouring state of Tamil Nadu, and in Sri Lanka. Some of India's least modernized, tribal peoples live in the hill regions of Kerala. Some of these tribes may be related to the Veddas, the *nomadic* (wandering) woodland people of Sri Lanka. Others are probably the descendants of the region's first human inhabitants.

**Arts.** Kerala has a literary heritage dating from the A.D. 100s. There are a great many works of literature in the Malayalam language, especially poetry. Kumaran Asan is a celebrated Keralan poet. Most Kerala dramas are a mixture of poetry, music, and dance, featuring stories from the Indian folk epics. One of Kerala's best known dance forms is *Kathakali*. It is performed by male dancers who train for about six years, learning its movements and gestures. For performances, the dancers' faces are elaborately painted and they wear stylized costumes and tall headdresses.



**Kerala** is a small state in southwestern India. It is densely populated, with most people living in large villages rather than cities.



**Hindus celebrate** the festival of Pooram. Kerala has a long history of tolerance between religious groups.

Fine murals decorate churches, palaces, and temples throughout the state. A notable feature of Kerala's simple but beautiful architecture is the *Malabar gable*, a triangular projection on the tops of tiled or thatched roofs.

**Onam** is a New Year festival and is one of the most important cultural events in Kerala. It takes place in August and September.

**Education** is more advanced in Kerala than in many other parts of India. About 90 per cent of the people can read and write. By law, boys and girls must attend school between the ages of 6 and 14. Education is free, and school attendance is almost 100 per cent. The state has about 12,000 schools, 200 colleges, and 5 universities.

**Government.** Kerala has 20 elected members in the *Lok Sabha* (lower house) and 9 nominated representatives in the *Rajya Sabha* (upper house) of the Indian national parliament. Kerala's state government is led by a governor and a chief minister. The state legislative assembly has 140 elected members and one nominated member.

### Economy

More than 50 per cent of Kerala's salaried and wage-earning population work for the state government. Many work for Kerala's 21 state-owned manufacturing companies. Others work in education, local administration, and the health service.

**Agriculture.** Rice and tapioca are the most important field crops, and together account for about half of the sown area. Other important field crops are ginger, peanuts, millet, *pulses* (the seeds of various pod vegetables, such as beans, chickpeas, and pigeon peas), sesame, and sugar cane. Kerala has long been famous for growing pepper, and supplies 98 per cent of India's pepper production. It also produces about 95 per cent of the nation's rubber. Commercial poultry farming is also highly developed, and eggs are an important export. In the central region of Kerala, between the coast and the inland plateau, commercially important trees include the cashew, jackfruit, mango, and palm.

Kerala's rubber plantations are on the lower slopes of the state's highlands. The same area also has important

plantations of coffee, pepper, tea, and *cardamom*, a plant related to ginger and used as a spice and in medicines.

Forests cover a quarter of the land area of Kerala. From them, the state produces bamboo, ebony, rosewood, and teak. The forests are also a source of charcoal, resin, and woodpulp.

Coconut groves cover most of the coastal lowlands of Kerala. Coconuts are an important part of the local way of life. The people of Kerala make ropes and matting from *coir* (prepared coconut fibre). They use coconut oil to make soap and cosmetics, use the *meat* (kernel) for food, and feed the *copra* (dried kernel) to livestock. In the past, people used the hollowed-out trunks of coconut palms to make canoes. People still use the leaves of coconut palms for thatching houses, making baskets, brooms, fans, and umbrellas, and as a fuel. Coconut milk is either consumed fresh or distilled to make an alcoholic beverage or vinegar. It is also evaporated to make sugar.

**Fishing** is important along Kerala's extensive coastline. About a quarter of India's total fish catch comes from Kerala. The state exports a number of marine products, especially frozen shrimp. Local farmers use fish waste as a fertilizer.

**Mining.** Kerala has a variety of mineral deposits. The sandy beaches contain *ilmenite*, the main ore of titanium, and *rutile* (titanium oxide) (see **Titanium**). There are extensive deposits of white clay and commercially valuable deposits of graphite, *lignite* (brown coal), limestone, and mica. Iron ore has been found at Calicut. Monazite, sillimanite, and zircon deposits are largely undeveloped.



**Beach resorts** are a feature of Kerala's sandy coastline. The beaches and Kerala's pleasant climate attract many visitors from other Indian states.





**Inland waterways** are an important part of Kerala's transportation system. Canoes called wallums carry cargoes on canals such as this one near Trivandrum, the state capital.

**Manufacturing.** There is little manufacturing industry in Kerala, but the state has set up about 12,000 factories employing about 300,000 people. Products of these factories include aluminium, cement, ceramics, chemicals, electrical equipment, fertilizers, glass, handwoven textiles, matches, paper, pencils, plywood, synthetic fibres, telephone cables, transformers, and veneers. The processing of sugar, tea, and sharkliver oil are also important.

Traditional crafts include processing cashews and coconuts, and weaving. Coconuts have long been used to produce fibres, soaps, and cosmetics. Traditional manufacturing crafts still surviving in Kerala include making furniture, mats, and pottery, rattan work, and brass and leather goods.

**Tourism.** Kerala's lively cultural activities and great scenic beauty attract many visitors. Most tourists come from other Indian states. Visitors are drawn by Kerala's comfortable climate. They also come to see the animal life of Kerala. The crowded coastlands support such birds as gulls and cranes. The forests of the interior are inhabited by bison, cobras, elephants, panthers, and tigers.

**Transportation and communication.** Kerala has more than 100,000 kilometres of roads. A national highway and a coastal road connect Kerala with neighbouring states. The density of motor vehicles on Kerala's roads is four times as great as the Indian national average. A substantial rail network runs between the northern border and Trivandrum, linking main towns such as Ernakulam and Alleppey. A railway through the Palghat Gap links Kerala to Madras on India's eastern coast.

Kerala has three major ports—Alleppey, Calicut, and Cochin. There are also ten smaller ports. The ports are served by more than 1,770 kilometres of inland water-

ways. Both passengers and freight travel on these waterways. Passenger ferries are still a major part of Kerala's transportation system, but carrying freight on the waterways has declined in importance.

The port at Cochin is a natural harbour and one of India's major ports. It is run by India's central government and, since 1983, it has served as the main exit port for the Inland Container Depot at Coimbatore, in Tamil Nadu. There is an international airport at Trivandrum. Another airport at Cochin handles domestic flights.

Kerala has a flourishing local press. Six daily newspapers are published in the state. There is also an English language magazine.

## Land

**Location and description.** Kerala occupies a 570-kilometre-long strip of coast on the western side of the Indian peninsula. It lies along the Malabar coast, with the Arabian Sea to the west. It is bounded by the states of Karnataka in the north and Tamil Nadu in the east and south. Kerala varies in width from west to east. It is about 120 kilometres at its maximum and just 30 kilometres at its minimum.

**Land features.** Kerala is cut off from the rest of India by the mountains of the Western Ghats. Its highest point is the summit of Anai Mudi, 2,695 metres above sea level. In the interior, these magnificent mountains contrast with green valleys. In the west, Kerala consists of coastal plains and a shoreline of sandy beaches and lagoons.

There is almost no natural forest left, although the game reserve at Periyar has restored a limited area to something like its original natural vegetation.

Kerala is so densely populated that there is little room for the region's original wildlife. Elephants, both wild



**Cochin** has the Basilica of Santa Cruz, for Christian worship. About a quarter of Kerala's people are Christian.

and domesticated, are common. Bison are found in the game reserves, but other wild species such as tigers and leopards have been greatly reduced.

**Climate.** Kerala enjoys a pleasant climate, with hardly any temperature changes throughout the seasons. The average temperature ranges from 21° C in the upland areas of the interior to 32° C in the coastal regions. The annual rainfall produced by the monsoons is nearly 300 centimetres. This rainfall helps to account for Kerala's lush agricultural fertility. Most of the rain falls in the northern region of the state. In the drier southern region, farmers have to use irrigation to supplement the annual rainfall.

**Rivers and lakes.** The chief rivers of Kerala are the Periyar, the Pamba, and the Bharat. Their rapid flow has allowed them to be used for hydroelectric schemes. But the generation of electrical power has not always been reliable.

Where the rivers flow into the sea, they produce sandbanks that protect the coast from the ravages of the Arabian Sea. The sandbanks provide safe anchorages for small vessels using Kerala's minor sea ports. Artificial *cuts* (canals) link the coastal lagoons. The Vembanad Lake, an important body of water in the state, is an enlarged lagoon.

### History

A rock inscription dating from the reign of Emperor Asoka, who ruled India in the 200's B.C., refers to the Chera people. It is probably the first historical mention of Kerala as a distinct region of India. The region was ruled by the Chera dynasty until the A.D. 400's. Traders from as far away as Rome brought gold coins and took away pepper. During this period, Hinduism, Buddhism,

and Jainism were introduced to South India by monks and migrants.

St. Thomas, the Christian apostle, is traditionally said to have founded the "Syrian" Church at Muziris (Cranganore) before A.D. 100. Jewish migrants established a settlement in Cochin in the 900's.

After the decline of the Chera dynasty, 200 years of confusion followed. During this time, Islam was introduced into Kerala by Arab merchants, whose descendants are locally known as *Moplahs*. In 825, the Kulasekhara dynasty began a new calendar, founded the city of Quilon, and set Kerala on a new path to greatness. Over the next 200 years, Malayalam developed as a separate language, which was close to, but distinct from, Tamil. Arts and learning flourished.

A hundred years of conflict with the Chola dynasty of what is now Tamil Nadu destroyed Kerala's prosperity and split it into small, warring states. Ravi Varma Kulasekhara, a local ruler, established a short-lived empire, uniting Kerala. His sudden death in 1314 caused Kerala to fall apart once more into small, mutually hostile areas.

In 1498, the Portuguese explorer Vasco da Gama landed at Calicut, and on Dec. 25, 1500, the Portuguese navigator Pedro Alvares Cabral arrived and began the Portuguese dominance of trade on the Malabar coast. The Dutch pushed out the Portuguese in the 1600's but were themselves decisively crushed in 1741 by King Martanda Varma of Travancore. Martanda Varma unified Travancore under his control. Between 1766 and 1790, the region was devastated by invasions from Mysore led by Hyder Ali and Tipu Sultan.

After the death of Tipu Sultan in 1792, the East India Company of Britain annexed Malabar. A series of treaties brought the states of Travancore and Cochin also under their control. British control of Kerala was punctuated by rebellions. Pazhassi Raja of Malabar led a five-year revolt against British rule which ended with his death in 1805. Another uprising, under Velu Thampi of Travancore, also ended with the death of its leader in 1809. The Moplahs rose in rebellion from 1849 to 1855, and again in 1921.

The positive aspects of British rule included the establishment of an education system and the extension of plantation agriculture, especially tea. They improved Cochin as a major port and set up a network of communications, including better links with the rest of India. These links became the basis of development after India gained its independence in 1947.

The move toward democracy in Kerala was first expressed through social reforms. The most influential reformer was Narayana Guru, whose slogan was "One caste, one religion, one God for mankind." The Communists played an important part in the anticolonial movement in Kerala. Prominent among them were K. P. Kesava Menon, A. K. Pillai, E. M. S. Namboodiripad, K. Kesavan, T. M. Varghese, P. Krishna Pillai, and A. K. Gopalan. In 1947, the Communists organized armed insurrections against the state of Travancore in the villages of Vayalar and Punnappra.

In 1949, the two separate states of Travancore and Cochin were united. In 1956, the boundaries of the newly united states were revised to include neighbouring Malayalam-speaking areas, and the whole territory was officially named Kerala.



The state's history since independence has been dominated by efforts to raise living standards through economic development and a successful family planning policy. Important economic changes have included the development of local hydroelectric schemes, the modernization of the fishing fleet with Norwegian assistance, and the development of manufacturing industry through state sponsorship.

Kerala's political history since 1956 has been rather troubled, with rival parties holding power for short periods and with interludes of rule from Delhi, India's capital. The Communist Party, which broke the control of the Congress Party over the state in 1957, has shown itself to be restrained but effective in government. But Kerala's large number of political parties has ensured that the state is more often than not governed by a *coalition* (group of parties).

**Related articles in *World Book* include:**

Asoka	India, History of
Chola Empire	Tipu Sultan
India, Government of	

#### Outline

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#### IV. History

**Keratin** is a tough, insoluble protein found in the outer layer of the skin of human beings and many other animals. This outer layer of skin is called the *epidermis*. The outermost layer of cells of the epidermis contains keratin. The keratin in these cells makes the skin tough and almost completely waterproof. In places where the skin is exposed to much rubbing and pressure—such as parts of the hands and feet—the number of cells containing keratin increases and a callus develops. Cells that contain keratin are constantly being shed and replaced by new ones. The condition known as dandruff results when the scalp sheds such cells. See **Dandruff**.

Keratin is also a part of certain structures that grow from the skin. The nails and hair of human beings contain keratin. In animals, such growths as horns, hoofs, claws, feathers, and scales consist mainly of keratin. Keratin helps make these structures stronger and better suited to protect the body from the environment.

See also **Hair**; **Skin**.

**Kerensky, Alexander Feodorovich** (1881-1970), was an early leader in the Russian Revolution of 1917. He gained fame as a lawyer defending people whom the czarist government had accused of revolutionary activities. After the revolution that overthrew the czar in March 1917 (February 17 on the old Russian calendar), Kerensky was the only Socialist member of the first provisional government. He became minister of justice, then minister of war, and finally prime minister. His government was well-meaning but indecisive about the popular demand for "peace, bread, and land."

The Communist Bolsheviks overthrew Kerensky's government on Nov. 7, 1917, which was October 25 on the old Russian calendar (see **Union of Soviet Socialist Republics** [History]). Kerensky fled Russia and settled in the United States in the 1940's. Kerensky later became a staff member of the Hoover Institution on War, Revolution, and Peace at Stanford University in Stanford, California. Kerensky directed a project concerning the Russian Revolution at the institute. Kerensky was born in Simbirsk (now Ulyanovsk), Russia.

**Kerguelen Islands.** See **French Southern and Antarctic Territories**; **World** (terrain map).

**Kern, Jerome** (1885-1945), an American composer, wrote the music for many musical comedies and films. He composed such famous songs as "All the Things You Are," "Bill," "Make Believe," "Ol' Man River," and "Smoke Gets in Your Eyes."

Jerome David Kern was born in New York City. He first became known for a series of musicals that he created mainly with the English writers Guy Bolton and P. G. Wodehouse. These musicals were called the "Princess shows" because they were presented at the Princess Theatre in New York City. The Princess shows included *Very Good Eddie* (1915), *Oh, Boy!* (1917), and *Oh, Lady! Lady!!* (1918). They were written for small casts and orchestras and had modern, everyday settings. They introduced a realistic style into musicals, in contrast to the fantasy of the operettas that were popular at the time.

Kern's greatest success was *Show Boat* (1927), for which Oscar Hammerstein II wrote the lyrics. *Show Boat* was one of the first musicals in which the songs and dances were integrated into the plot. Kern's other musicals included *The Cat and the Fiddle* (1931), *Music in the Air* (1932), and *Roberta* (1933). After 1933, Kern composed music almost entirely for films. He worked on such films as *Swing Time* (1936) and *Cover Girl* (1944).

See also **Hammerstein, Oscar, II**.

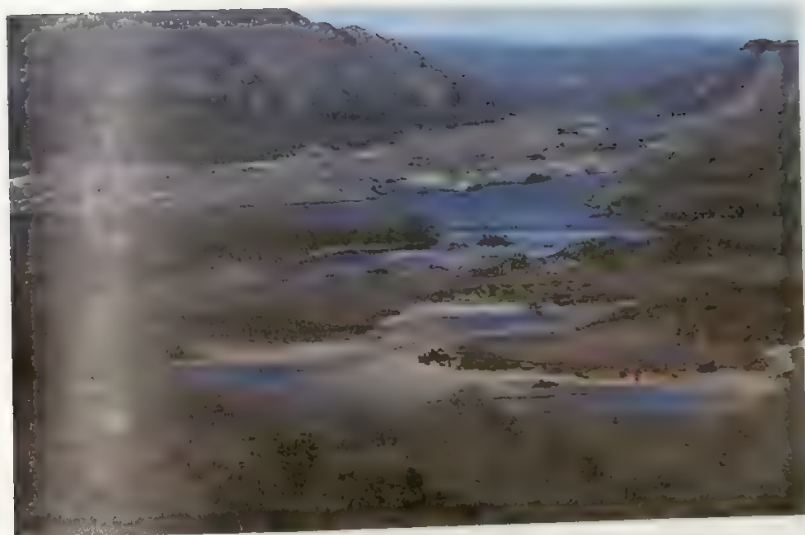
**Kerosene** is an important petroleum product, used chiefly as fuel. In the petroleum industry, kerosene is spelled *kerosine*. It is called *paraffin* outside North America, except when it is used as aircraft fuel.

Kerosene's greatest use is in jet aircraft engines. Turboprop and the conventional ramjet engines use it as fuel. Commercial jet aircraft use kerosene. Military aircraft use a mixture of kerosene and petrol. Many farmers use kerosene to run tractors and other farm machinery. Kerosene operates the electric generators that charge storage batteries on farms and in small villages.

See also **Paraffin**; **Rocket** (Rocket propellant).

**Kerouac, Jack** (1922-1969), was an American author and a leader of the *beat movement* of the 1950's and 1960's. Most of the beats were young people who reacted against what they felt were the commercialism and conventional quality of American life. Kerouac's major writings are loosely organized and autobiographical. Many describe his wanderings throughout the United States, Mexico, and Europe. Like the works of other beat writers, Kerouac's novels emphasized sex, drugs, and the Asian religion called Zen.

Kerouac's most famous novel is *On the Road* (1957), an account of several beat characters who travel across the United States in search of personal fulfillment. His other novels include *The Dharma Bums* (1958), *The Subterraneans* (1958), and *Big Sur* (1962).



**The Lakes of Killarney** are Ireland's most famous beauty spot. The rugged but romantic scenery of lakes and mountains attracts visitors from many parts of the world. The view on the left is the Upper Lake, seen from Torc Mountain.

Kerouac was born in Lowell, Massachusetts. His real name was Jean-Louis Lebris de Kerouac. He entered Columbia University, New York City, in 1940 but left a year later. After serving in the merchant marine for a short time, he wandered through the United States and worked as a labourer. His first work was published in 1950. By the mid-1950's, Kerouac had become a celebrity as a spokesman for the beat movement.

**Kerr, Sir John** (1914-1991), was governor general of Australia from 1974 to 1977. Kerr created a storm of controversy in 1975 by sacking Labor Prime Minister Gough Whitlam. The reason for this unprecedented action was that the Liberal-dominated Senate refused to pass Labor's budget and the prime minister refused to hold an election or resign.

John Robert Kerr was born in Sydney. He was the son of a Balmain boilermaker. He was educated at Fort Street High School and Sydney University. He served as chief justice of New South Wales from 1972 to 1974.

**Kerrier** (pop. 86,400) is a local government district in the south of Cornwall, England. It includes the moorland area of the Lizard peninsula and an upland area of granite around Camborne and Redruth. Elsewhere, lowland areas are used extensively for farming, and dairy and beef cattle are important. Market gardeners grow vegetables, fruit, and flowers for the London markets and for the tourists who visit the district and other parts of Cornwall. Manufacturing industry in the district is centred on the area of Camborne-Redruth. On the south coast, Porthleven is a fishing village. Helston, a popular holiday centre and market town, is famous for its *Furry* dance.

See also **Cornwall**.

**Kerry** is a coastal county in the southwest of the Republic of Ireland. It is one of the counties in the province of Munster. Kerry is famous for its scenery. The Lakes of Killarney, which draw many tourists to Kerry, are among Ireland's most famous beauty spots. Agricultural lowland in north Kerry contrasts with the mountainous south and west of the county. Tralee is the main service and manufacturing centre.

**People and government.** Kerry's population in 1991 was 1 per cent lower than it was at the census in 1981. Apart from a period of growth in the 1970's, Kerry's population was in decline throughout the 1900's because of emigration. By the 1990's, the county's population was half what it had been in 1851. Nearly 73 per cent of Kerry's people live in rural areas.

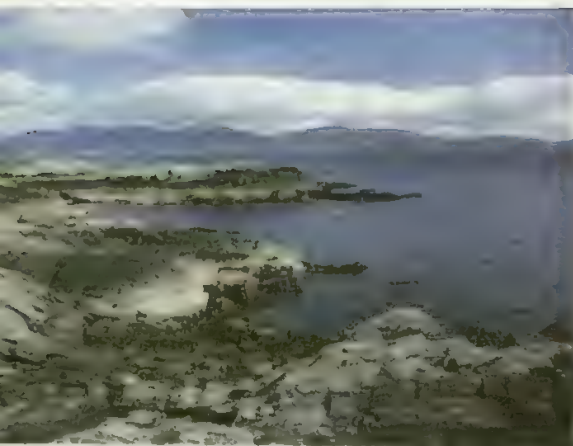
About 96 per cent of the people of Kerry are Roman Catholic. Almost all the remainder are members of the Church of Ireland. The cathedral of the Roman Catholic diocese of Kerry is in Killarney. The Church of Ireland diocese of Ardfert and Aghadoe has been united with Limerick since the 1600's. See **Limerick**.

English is the everyday language of most Kerry people. *Gaelic* (Irish) is spoken in *Gaeltacht* areas on the western parts of the Dingle and Iveragh peninsulas, where about 8,000 people live. Several famous writers in the Irish language were born in the Blasket Islands. They include Tomás Ó Cíomhthain and Maurice O'Sullivan.



**Kerry** is a county on the southwest coast of the Republic of Ireland. It is famous for its scenery.





**Kenmare River** is a long sea inlet in southern Kerry. This view looks across the river to the Caha Mountains.

The National Folk Theatre of Ireland is based in Tralee. County Kerry is a stronghold of Gaelic football.

Kerry has two electoral constituencies, each being represented by three members of *Dáil Éireann* (the lower house of the Republic of Ireland's parliament). Local government administration is in the charge of a county council, based in Tralee. There are urban district councils in Killarney, Listowel, and Tralee.

**Economy.** About one-fourth of the people of Kerry work in agriculture. North Kerry is the most prosperous farming area. Dairying is particularly important there, and the sale of milk to creameries is the main source of farm income. There is also cattle production. Some farms grow barley, oats, and potatoes, but most of the land is under grass. Cattle and sheep rearing are the main types of farming in the hill areas of the south and west. Farms are smaller than elsewhere in Munster. The average area of agricultural land per holding is 15 hectares.

One out of six working people in Kerry has a job in manufacturing industry. The three main types of industry are food processing, textiles and clothing, and engineering. Milk processing is the principal food industry. In Tralee, factories produce bacon, clothing, dairy products, electronic and engineering equipment, textiles, and vacuum cleaners. Printing is also a significant industry. There are cutlery, dairy product, and electronics industries in Listowel. Factories in Killarney produce cranes, hosiery, and safety equipment.

Nearly half of Kerry's workers have jobs in service industries. Retail and wholesale distribution are the most

important types of services. Many people also work in education and health services. There is a regional technical college in Tralee. Other services include finance, public administration, and transport.

Tourism is more important in Kerry than in almost any other part of Ireland, mainly because of its attractive scenery. Killarney is a major tourist centre that has long attracted large numbers of foreign visitors. The neighbouring lakes, mountains, and woods are part of the Killarney National Park. Other tourist centres are mainly on the coast and include Ballybunion, Cahirciveen, Dingle, Kenmare, Tralee, and Waterville. Two annual events which attract large numbers of people to Kerry are the Rose of Tralee Festival and the Puck Fair in Killorglin.

There is fishing along the coast, especially at Castlegregory, Dingle, Fenit, and Valencia. Some upland areas contain commercial forests. Peat is cut for household use and burned in a small power station at Cahirciveen. There is a large oil-fired power station at Tarbert on the estuary of the River Shannon.

National primary road routes link Tralee with Limerick (N21) and Cork (N22). A car ferry operates across the Shannon estuary between Tarbert and Killimer in Clare. A railway links Tralee and Killarney with the Dublin-to-Cork line at Mallow. Kerry Regional Airport is at Farranfore. Fenit is a small deep-sea port.

**Land.** The long and indented Atlantic coastline forms Kerry's western boundary. The Shannon estuary forms the northern boundary. Most of the inland boundary is with Cork, but Kerry adjoins Limerick in the northeast. Kerry is about 100 kilometres from north to south and 80 kilometres from east to west.

The rugged mountainous landscape of southern Kerry and the Dingle Peninsula lies on hard sandstone rocks. It reaches its greatest height near Killarney in



**On Skellig Michael** are the remains of a monastic settlement of the A.D. 500's. A *skellig* is a small, rocky island.

### Facts in brief about Kerry

**Population:** 1991 census—121,719.

**Area:** 4,701 km<sup>2</sup>.

**Largest towns:** Tralee, Listowel, Killarney, Castleisland.

**Chief products:** Agriculture—cattle, milk, sheep. Other primary products—building materials, fish, timber. Manufacturing—clothing, cranes, dairy products, electronic equipment, engineering products, textiles.

**Origin of name:** From the *Ciarraigh*, an ancient tribal group which occupied the area.

Macgillycuddy's Reeks, which include Ireland's highest mountain peak, Carrauntoohil (1,041 metres). During the Ice Age, glaciers wore away the rocks, leaving behind jagged peaks, deep valleys, and many lakes. The mountainous peninsulas of Dingle, Iveragh, and Beara stretch out into the Atlantic Ocean. Between the peninsulas are the long sea inlets of Dingle Bay and Kenmare River. Valencia, the largest island, is joined to the mainland by a bridge. Other smaller but prominent islands include the Blaskets and Skelligs.

Although many people think of Kerry as being mountainous, the north of the county is lowland rising gently to a low plateau. Kerry Head is sandstone similar to that of southern Kerry, but the remainder of the north consists of younger limestone, shale, and sandstone. The Lakes of Killarney lie at the southern boundary of the lowland. The River Laune drains the lakes into Dingle Bay. The River Maine also flows into Dingle Bay, and further north the River Feale enters the estuary of the River Shannon.

Southern and western Kerry are in the mildest part of Ireland. This means that grass may grow throughout the year, and some plants from warmer climates flourish in the region. The average temperature is as high as 7° C in coastal areas in January, and the average July temperature is 16° C. Annual rainfall exceeds 200 centimetres on the higher mountains, but is less than 100 centimetres near the Shannon estuary in the north. The mild and moist conditions encourage luxuriant growth of vegetation in places sheltered from the winds.

**History.** The best-known survivals of early settlement on the remote peninsulas and islands of Kerry include the Staigue Fort and remains of Celtic monasteries. Much of Kerry belonged to the Gaelic Munster kingdom of Desmond, which was ruled by the McCarthys in early medieval times.

During the 1200's, parts of Kerry came under Anglo-Norman control, principally that of the Fitzgeralds. From the 1580's, the British granted some lands to settlers as part of the Plantation of Munster. Some Irish families who had lost lands further east also moved into the county. The development of the larger towns dates from this time. Daniel O'Connell, the Roman Catholic leader of the early 1800's, lived at Derrynane, near Waterville. His former home is now a national historic site. Kerry suffered badly in the Great Famine of the 1840's.

**Kerry blue terrier**, also called the Irish blue terrier, is a type of dog originally bred in southwestern Ireland. A native breed, it was crossed with other terriers, such as the Irish and the dandie dinmont, to produce a hunting, herding, and guard dog. It is an intelligent, affectionate, but stubborn dog which will fight with other dogs. It has a powerful, well-proportioned body. The Kerry blue has a long, narrow head, and very strong jaws. It has small dark eyes, and V-shaped ears which fall forward. The tail is upright and on many dogs is *docked* (partly removed). The Kerry blue has a short, curly coat, which sometimes needs trimming. The coat is blue-grey in colour. Puppies up to 18 months old are usually much darker in colour. The Kerry blue grows to from 44 to 48 centimetres at the shoulder. It weighs from 15 to 17 kilograms.

See also **Dog** (picture: Terriers); **Terrier**.  
**Kesteven**. See **Lincolnshire**.

**Kestrel** is the name of any of several small members of the falcon family. Kestrels live in Africa, Asia, Australia, Europe, and North and South America. The *common kestrel*, usually called simply the *kestrel*, lives throughout much of Europe, Asia, and Africa. Another species, the *lesser kestrel*, lives around the Mediterranean Sea and in central Europe. The *American kestrel* lives throughout North and South America. This species is sometimes called the American sparrow hawk, but it is not a true hawk.

Most kestrels have a reddish-brown back. The tail of the American kestrel is reddish-brown, and the wings of males are greyish-blue. The common kestrel and the lesser kestrel have a grey tail and reddish-brown wings. Kestrels measure from 20 to 40 centimetres long.

The common kestrel eats chiefly mice and other rodents. It *hovers* (stays in one place) in the air while it hunts. This bird faces into the wind and beats its wings while watching the ground for prey. When it sees a small rodent, such as a field mouse, it will often lower itself, hovering closer to the ground, before it finally pounces on its prey. The American kestrel feeds mostly on insects.

Kestrels nest in holes in buildings, cliffs, and trees. They also may use nests abandoned by other birds. In Europe and North and South America, kestrels sometimes nest in cities, usually atop church towers or other tall structures. In Europe, they are often seen hunting over the grass verges of motorways.

**Scientific classification.** Kestrels belong to the family Falconidae. The common kestrel is *F. tinnunculus*, the lesser kestrel is *F. naumanni*, and the American kestrel is *F. sparverius*.

See also **Falcon** (with picture).

**Kettering** (pop. 75,200), a local government district in Northamptonshire, England, includes the towns of Burton Latimer, Desborough, Kettering, and Rothwell. The main industries are footwear manufacture, engineering, and warehousing and distribution. Agriculture is also important. The town of Kettering dates from 956. Henry III granted it market rights in 1227. Wicksteed Park, with its many amusements, lies close by. Rothwell has a church built in the 1200's and a chapel dating from 1655. One of Edward I's Eleanor Crosses still stands at Geddington. See **Eleanor Crosses**; **Northamptonshire**.

**Kettering, Charles Franklin** (1876-1958), was an American engineer and inventor. He designed and developed such varied industrial products as car self-starters, farm lighting sets, ethyl petrol, quick-drying lacquer, a two-cycle diesel engine for trains, and a high-compression car engine. He was born near Loudonville, Ohio. Bad eyesight slowed his education, but he graduated from Ohio State University in 1904.

His first inventive position was with the National Cash Register Company (now NCR Corporation) in Dayton, Ohio. He invented several accounting machines, but resigned to work on an idea for a car ignition system. The resulting invention, the self-starter, made it possible for him to organize the Charles F. Kettering Laboratories. The organization was made part of the General Motors Corporation in 1916. Kettering was named vice president in charge of research. In 1947, he resigned from that position to become a research consultant for General Motors.

During World War II (1939-1945), Kettering was a mili-



tary adviser, and also served as chairman of the National Inventors Council.

See also **Starter**.

**Kettle hole** is a bowl-shaped hollow in the loose rocks and other material that have been deposited by a melting glacier. As a glacier retreats, large blocks of ice that have separated from it are left behind. These blocks of ice may then be wholly or partially buried in material deposited by the melting glacier. When such a block of ice melts, it leaves a kettle hole. Some shallow kettle holes remain dry. However, many kettle holes fill with water and form swamps or kettle lakes.

**Kettledrum**. See **Drum**.

**Kew Gardens**, more properly called the *Royal Botanic Gardens*, contain the largest collection of living and preserved plants in the world. The gardens also form an important centre for botanical research.

The gardens cover about 120 hectares in Richmond upon Thames, a borough in the southwestern part of Greater London. They are dominated by a Chinese pagoda. This 10-storey decorative structure stands 49 metres high. Important plant collections at the gardens are housed in two museums—the General Museum and the Wood Museum. The Palm House, the Princess of Wales Conservatory, and other glasshouses provide protection for many rare plants that are disappearing from the wild.

Kew Gardens began as a royal garden in 1759. The site was extended by King George III, and part of it was presented to the nation as a royal gift in 1841. The gardens are open to the public every day except Christmas Day and New Year's Day.

**Key**. See **Lock**.

**Key** is a musical term used to tell the keynote in which a musical composition is written. A song written in the key of C has as its keynote C, the tonal centre of the C scale. The key includes the tones of the scale and all the chords made from those tones. The first note of the scale is called the *keynote*, or *tonic*, and the key gets its name from the first note. Each of the 12 major and 12 minor scales has a keynote.

The term *key* also means the small finger piece that opens and closes the sound holes on wind instruments such as the clarinet or bassoon. Instruments such as the piano or organ have levers called keys. A player presses the keys to produce sound.

**Key, Francis Scott** (1779-1843), was a well-known American lawyer and amateur verse writer. He became famous for writing the words of "The Star-Spangled Banner," the national anthem of the United States. He wrote the poem during the War of 1812 between the United States and the United Kingdom.

Key witnessed the British fleet's bombardment of Fort McHenry in Baltimore Harbor. He watched the shelling with anxiety throughout the night. The next morning, he saw that "our flag was still there" despite the ordeal. His joy inspired him to write a poem about it.



Portrait by unknown artist

**Francis Scott Key**

Key turned the text over to a Baltimore printer. He borrowed the tune from a popular English drinking song, "To Anacreon in Heaven." The U.S. Congress adopted his song, "The Star-Spangled Banner," as the national anthem of the United States in 1931. Key was born in Frederick County, Maryland.

**Key West**, Florida (pop. 24,832), is the southernmost city in the continental United States. It occupies a coral island about 160 kilometres southwest of the mainland. It is a resort city, and also has a U.S. naval air station. Key West is located only about 140 kilometres north of Cuba.

Key West became important in the 1870s for cigar making, fisheries, and food processing. In 1912, a railway, built on trestles over the water, connected Key West to the mainland.

**Keyboard instrument**. See **Music** (Keyboard instruments; illustration); **Piano**.

**Keynes, John Maynard** (1883-1946), was one of the most influential economists of all time. Keynes's *General Theory of Employment, Interest, and Money* (1936) ranks among the most important books on economics. The book changed economic theory and policy, and is the basis of the economic policies of many non-Communist nations today.

Keynes analysed economic processes that lead to depressions and described policies to avoid depressions. He was one of the first economists to argue convincingly that government should take measures to counter a depression. His ideas helped shift emphasis away from *laissez faire*, the economic theory which maintains that government should not interfere in economic affairs.

The basis of Keynesian economics is simple. The level of economic activity depends on the total spending of consumers, business, and government. If business expectations are poor, investment spending will be cut, causing a series of reductions in total spending. If this should happen, the economy can move into a depression and stay there. To avoid a depression, Keynes urged increased government spending and *easy money* (lower interest rates and making more money available for loans). These actions, he argued, would encourage investment, increase employment, and enable consumers to spend more. The analysis showed that high levels of demand were essential for both full employment and economic growth. For a further discussion of Keynesian policies, see the article on **Depression**.

Keynes was born in Cambridge, England, and studied at Cambridge University. He served in the British Treasury from 1915 to 1919. Keynes became internationally prominent when he wrote *The Economic Consequences of the Peace* (1919). The book attacked the reparations (payments) that the Allies demanded from the defeated Central Powers, and predicted the breakdown of the Versailles peace settlement. During the 1920s, when England had serious economic difficulties, Keynes wrote a series of books and essays that attacked the economic policies of the government and laid the basis for his great book of 1936. The most important of these works were *A Tract on Monetary Reform* (1923), *The End of Laissez Faire* (1926), and *A Treatise on Money* (1930). Keynes became a government adviser in 1940, and a director of the Bank of England in 1941. He was knighted in 1942 and received the title of Baron Keynes of Tilton.

See also **Robinson**, **Joan Violet**.

**KGB** was, until 1991, a government agency of the Soviet Union. The agency operated a secret-police force to maintain the Communist Party's control of the country. It also gathered political and military *intelligence* (information) about other countries. In addition, the KGB provided bodyguards for Soviet officials and patrolled the borders. In other countries, besides gathering intelligence, the KGB conducted various secret operations to aid governments or political organizations friendly to the Soviet Union. It also aided opponents of governments that Soviet leaders disliked.

In 1991, the head of the KGB took part with several other Communist officials in a failed attempt to take over the Soviet government. After the attempt, Soviet leaders replaced the KGB head and suspended all Communist Party activities. Later, the KGB was formally disbanded and its functions divided among several smaller agencies. In late 1991, the Soviet Union was dissolved.

The KGB developed from the Cheka, a secret-police force established in 1917. The organization had several names after that. In 1954, it received the name *KGB*, which stands for the Russian words meaning *Committee for State Security*.

**Khachaturian, Aram Illich** (1903-1978), was an important Soviet composer. His music successfully accommodates folk materials from the Caucasus Mountains region in Europe and Asia with conservative elements in Russian nationalist music of the late 1800s and early 1900s. It features strong rhythms and lyrical melodies.

One of Khachaturian's most successful works is the ballet *Gayane* (1942, revised 1957). It contains the "Sabre Dance," his best-known composition. Khachaturian arranged a number of orchestral suites from the music of *Gayane* and the ballet *Spartacus* (1956, revised 1968). His other large-scale works include three symphonies (composed in 1934, 1943, and 1947) and three concertos-rhapsodies (composed in 1962, 1963, and 1968). He also wrote concertos, film scores, and chamber music. Khachaturian was born to Armenian parents near Tiflis (now Tbilisi), Georgia.

**Khaki** is a cotton cloth of a dust-brown colour. The East Indian word *khaki* means *dust-coloured*. True khaki has the *twill* (diagonal) weave, but plain-weave cottons in dust-brown are also called khaki. Khaki is used for clothing, especially military uniforms.

**Khalid** (1913-1982) served as king of Saudi Arabia from 1975 until his death. He succeeded his half brother King Faisal, who was assassinated. In 1962, when Faisal was crown prince and prime minister of Saudi Arabia, he named Khalid first deputy prime minister. In 1965, after Faisal had become king, he made Khalid crown prince. After Khalid became king, he also named himself prime minister of Saudi Arabia. Khalid, whose full name was Khalid ibn Abd al-Aziz Al Saud, was born in Riyadh. His father was King Abd al-Aziz ibn Saud, known as "Ibn Saud," the founder of Saudi Arabia.

See also *Saudi Arabia* (History).

**Khalid ibn al-Walid** (? -642), an Arab general, was given the name "Sword of God" as a result of his conquest of Syria. He was originally an opponent of the Prophet Muhammad (see *Muhammad*). But he later converted to Islam and helped conquer Mecca in 629.

After Muhammad died in 632, Khalid prevented the breakaway of various provinces that considered their al-

legiance to Islam ended with the death of its Prophet. Khalid then led an invasion of Iraq. He crossed the desert and surrounded Damascus, a major outpost of the Byzantine Empire, forcing it to surrender in 635. In 636, he gained a decisive victory over the Byzantines and their allies in the valley of the Yarmuk River.

**Khan** is the word now used for *mister* in Afghanistan and other parts of central Asia. Originally, rulers used the title, then men of high rank acquired it. See also *Genghis Khan*; *Kublai Khan*.

**Kharkov** (pop. 1,536,000) is a machinery manufacturing centre in Ukraine. It lies near the iron and coal region of the Donets River Basin. For location, see *Ukraine* (map). The city's factories produce machinery, tractors, train engines, and electrical equipment. Kharkov is a trading centre for the grain and other farm products of Ukraine. It is also a centre of education and culture.

Kharkov was founded in the 1700s. It was the capital of Ukraine until 1934 when Kiev became the capital. **Khartoum** (pop. 476,218; met. area pop. 817,464) is the capital of Sudan. It is located at the junction of the Blue Nile and White Nile. See *Sudan* (map). The city has many modern buildings and tree-lined streets. Places of interest include the governor general's palace, churches, mosques, a zoo, and museums.

Khartoum serves as a trading and communications centre in a rich cotton-growing area. Rail lines connect the city with Egypt, and boats carry cargo between the main towns of the Blue and White Nile. Egyptian Muhammad Ali conquered Sudan and founded Khartoum in the 1820s. In 1830, Khartoum became the capital of Sudan. Muhammad Ahmed, a Muslim leader called the *Mahdi* (divinely appointed guide), destroyed much of the city in 1885 in his revolt against the Egyptians who ruled it. British Lord Kitchener occupied Khartoum in 1898 and rebuilt it.

**Khayyam, Omar**. See *Omar Khayyam*.

**Khmer**. See *Cambodia* (People; History).

**Khmer Rouge**. See *Cambodia*.

**Khoikhoi** is the name of a yellow-skinned people of southern Africa. These people used to be called *Hottentots*. However, *Hottentot* is an insulting term meaning *savage* or *barbarian*. Anthropologists prefer to use the people's own name for themselves, *Khoikhoi*, which means *men of men*.

The only remaining Khoikhoi group, the Nama, live in Namibia. The Nama's way of life differs greatly from that of their ancestors. Less than 20 per cent of the Nama live in rural reserves. The rest work for whites on farms or in towns.

Anthropologists believe there were once at least 18 Khoikhoi tribes. The Khoikhoi were nomads who lived by herding sheep and cattle. The women did the milking. The men tended the herds and also hunted. The Khoikhoi had a number of distinctive physical characteristics that set them apart from other African peoples. These features included tightly coiled hair, plus inner eyefolds that gave their eyes a slanting appearance. The language of the Khoikhoi included clicking sounds and was unrelated to other African languages. The Khoikhoi in South Africa disappeared as a separate people through warfare and intermarriage with other African groups and with the Dutch settlers called *Boers*.

See also *Africa* (Peoples of Africa).



**Khoisan** is the name given to the oldest identifiable groups of people to live in southern Africa. The term refers to two groups, the *San* and the *Khoikhoi*. The *San* are commonly called *Bushmen* and the *Khoikhoi* were known to the Dutch as *Hottentots*. People now consider these terms insulting.

The two groups speak related languages characterized by clicking sounds. The people are also similar physically. Both groups have yellowish-brown skin and black hair. The *San* are generally shorter than the *Khoikhoi*. Most adult *San* are about 150 centimetres tall. Historians and *anthropologists* (scientists who study humanity) believe that the *Khoikhoi* are offshoots of the *San* who raised sheep and cattle.

See also *Khoikhoi*; *San*.

**Khomeini, Ruhollah** (1900?-1989), an Islamic religious leader, became the chief political figure of Iran from 1979 until his death in 1989. He came to power after his followers had overthrown Mohammad Reza Pahlavi, the *shah* (king).

Khomeini made Iran an Islamic Republic and put Islamic laws into effect. These laws included many restrictions on the activities of the people. For example, the people were forbidden to drink alcoholic beverages, and nightclubs were outlawed.

In October 1979, the *shah*—who had fled from Iran—was admitted to a hospital in the United States. In November, Iranian revolutionaries took over the United States Embassy in Teheran, Iran. They held as hostages a group of Americans, most of whom worked for the embassy. Khomeini supported the revolutionaries, who said they would hold the hostages until the *shah* was returned to Iran for trial. The *shah* died in July 1980. The hostages were released in January 1981. See *Iran* (The Islamic Republic). During Khomeini's rule, Iran fought a destructive war with neighbouring Iraq over territorial disputes and other disagreements. After nearly eight years of fighting, the two countries reached a cease-fire in 1988.

Khomeini's original name was Ruhollah Moussavi. He was born in Khomein, a town south of Teheran, and changed his last name to Khomeini. In the 1920s, Khomeini became a teacher of Islamic philosophy and law. Khomeini earned the title *ayatollah*, a Persian word meaning *reflection* (or *sign*) of *Allah*. This title is the highest that can be held by a member of the Shiite sect of Islam. Khomeini became the chief figure of the Shiite sect in Iran in the early 1960s. In 1963, he was imprisoned for opposing the *shah*. Khomeini was exiled in 1964, but he continued to work for the overthrow of the *shah*. He lived in Iraq for 14 years and then in France for 1 year before returning to Iran in February 1989.

**Khrushchev, Nikita Sergeyevich** (1894-1971), was the leader of the Soviet Union from 1958 to 1964. He tried to raise the Soviet standard of living and greatly expanded his country's programme of space exploration. Khrushchev had little pity for weaker nations and his po-

litical enemies. But he sometimes showed a good-natured humour.

Khrushchev strongly criticized the cruelty of the Soviet dictator Joseph Stalin, who ruled the Soviet Union mostly by terror from 1929 to 1953. Khrushchev also worked to avoid war with the Western nations. This policy helped cause a split between the Soviet Union and China and contributed to the opposition that led to Khrushchev's fall from power.

**Rise as a Communist.** Khrushchev was born in Kalinovka, near Kursk, in southwestern Russia. His father was a poor peasant who also worked as a coal miner. In 1918, Nikita joined the *Bolsheviks* (Communists), who had seized control of Russia in 1917. In 1922, the Communist government established the Soviet Union.

Khrushchev moved to Moscow in 1929 and soon afterward won the praise of leaders of the Communist Party in Moscow. By 1939, Khrushchev had become a member of Stalin's top executive group, called the Politburo. In 1941, during World War II, Germany invaded the Soviet Union and occupied Ukraine, which was then a republic of the Soviet Union. Khrushchev helped organize troops to fight the Germans there and headed the effort to get war-torn Ukrainian farms, coal mines, and steel mills back into production.

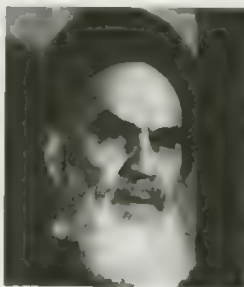
In 1949, Khrushchev became a secretary of the Central Committee of the Communist Party. Stalin died in March 1953, and Georgi Malenkov became premier. Six months later, Khrushchev became first secretary, or head, of the Communist Party of the country. Nikolai Bulganin succeeded Malenkov as premier in 1955.

In February 1956, Khrushchev bitterly criticized Stalin for committing widespread murder and other terrible crimes against the Soviet people during a 24-year reign of terror. This attack began a programme to dishonour Stalin that became known as *destalinization*. The government destroyed statues and pictures of Stalin and renamed many places that had been named after him.

Destalinization caused political disturbances in the Communist world. In 1956, revolts took place against the Communist governments of Poland and Hungary. Khrushchev sent troops and tanks to stop the uprising in Hungary. See *Hungary* (Communist Hungary).

**Soviet dictator.** A number of Communist Party officials became jealous of Khrushchev's growing power. But he managed to remove them from their jobs. On March 27, 1958, he replaced Bulganin as premier of the Soviet Union. Khrushchev became a strong dictator. But he did not rule by terror as Stalin had done, and reduced the power of the country's dreaded secret police.

Khrushchev worked to raise the standard of living in the Soviet Union. He began programmes to increase the production of grain, housing, and such consumer goods as clothes and furniture. He also spent large sums on weapons and space exploration. In 1957, the Soviet Union launched Sputnik I,



**Ruhollah Khomeini**



**Nikita S. Khrushchev**

the first spacecraft to circle the earth. In 1961, Soviet *cosmonaut* (astronaut) Yuri Gagarin became the first person to orbit the earth.

Khrushchev greatly changed Soviet foreign policy. His goal was to avoid war with the Western nations and, at the same time, to increase economic and political competition between Communist and non-Communist countries. This policy, which became known as *peaceful co-existence*, caused bitter quarrels between the Soviet Union and China. The Chinese favoured more warlike policies. See **Cold War**.

In 1962, Khrushchev angered the United States by installing missiles in Cuba. President John F. Kennedy demanded their removal, and Khrushchev withdrew them (see Cuba [The Cuban missile crisis]). Withdrawal of the missiles and the split between the Soviet Union and China disturbed many Soviet leaders. Further discontent with Khrushchev occurred during the early 1960's, when many of his attempts to increase farm production failed and the rate of industrial growth slowed.

Opposition to Khrushchev grew. In October 1964, high officials in the Communist Party forced Khrushchev to retire as both premier of the Soviet Union and first secretary of the party.

Related articles in *World Book* include:

Bulgarian, Nikolai A.	Politburo
Communism	Union of Soviet Socialist Republics (History)
Malenkov, Georgi M.	
Molotov, Vyacheslav M.	

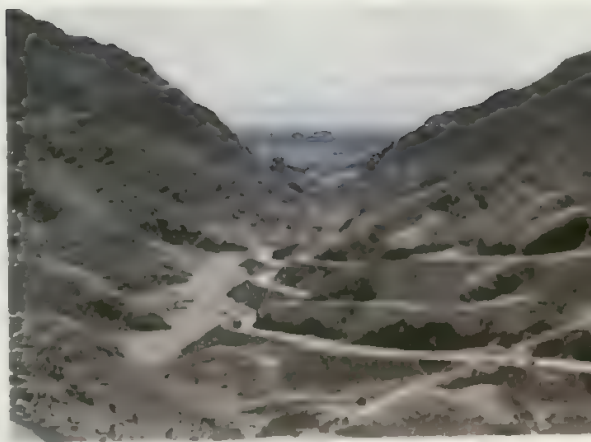
**Khufu** was a king of ancient Egypt who lived about 2600 B.C. He is famous for his tomb, the Great Pyramid at Giza (Al Jizah), near Cairo. This pyramid is one of the Seven Wonders of the Ancient World.

Khufu, called *Cheops* by the Greeks, was the son of King Snefru. Little is known about his life. But scholars believe only a powerful ruler could have made his people build such a large pyramid. In the 1920's, the tomb of Khufu's mother, Hetepheres, was found near Khufu's pyramid. It contained furniture and jewellery, but the mummy was missing.

See also **Pyramids** (Egyptian pyramids; illustration).

**Khusrau, Amir** (1253-1325), was an Indian author, poet, and linguist. His name is sometimes spelled *Khusro*. Khusrau was born in the village of Patiali, in the Etah district of what is now the Indian state of Uttar Pradesh. He was fluent in Persian and knew Arabic and Turkish as well as his native Hindi. By the age of 20 he was already famous for his literary prowess and fine reading voice. He enjoyed royal patronage from many rulers. He wrote histories, romances, verse, and riddles, and compiled a Hindi-Persian dictionary. His lyrics are still popular in India.

**Khyber Pass** is one of the most famous mountain passes in the world. The pass is on the frontier of Pakistan and Afghanistan. It connects the city of Peshawar, in Pakistan, with the Afghan capital, Kabul. For location, see **Pakistan** (physical map). This pass is the easiest route between the Indian subcontinent and Afghanistan. It was an important military point for hundreds of years. Persians, Greeks, Mughals, and Afghans all used the pass for military expeditions. Before the partition of India in 1947, the British said that there could be no land invasion of Britain's Indian empire as long as the Khyber Pass was successfully defended. The pass is 53 kilometres



The Khyber Pass cuts through the rugged mountains that separate Afghanistan and Pakistan. Camel caravans and motor vehicles travel along the pass, which is 53 kilometres long

long and only 3 metres wide at its narrowest point.

Villages lie on either side of the pass. Some fortresses and watchtowers still stand. They were used when feuds were common among hill tribes. A railway travels to the head of the pass.

**Kibbutz** (plural kibbutzim) is a form of Jewish community in Israel in which no one owns private property. All property belongs to the kibbutz, and the kibbutz meets the needs of all the members and their families. All the members work for the kibbutz and receive goods and services for their labour instead of wages. These goods and services include food, housing, education, child care, and medical care. Kibbutzim are sometimes called *collective communities*.

Many kibbutz members have daily jobs. Others are assigned to a variety of jobs by a work committee. All members of the kibbutz have equal say in how the community is run. Members vote on all important matters and may serve on administrative committees.

In most kibbutzim, the adults and children live apart. The children eat, sleep, and study together in a separate children's community. They learn from an early age that community needs are more important than family needs. Mothers of infants visit their children frequently during the day, and both parents join their children for a time after work. Parents and children form close ties even though they do not live together. But this method of raising children remains controversial.

There are more than 250 kibbutzim in Israel. They range in size from about 50 to 1,500 members. A typical kibbutz has about 275 members. Each kibbutz leases land for a small fee. Israelis who wish to join a kibbutz generally serve a year on the kibbutz as a candidate for membership. The kibbutz then votes on whether to admit the candidate as a member.

Jewish immigrants from Europe founded the first kibbutz in 1909 in the Jordan River Valley in what was then Palestine. Early kibbutzim depended chiefly on agriculture for their livelihood. But today, most kibbutzim own factories as well as farmland.

**Kid.** See **Goat**.



**Kidd, William** (1645?-1701), was a famous Scottish pirate. As a young man, he worked as a *privateer* (captain of an armed ship) for the English against the French. He then became a respectable New York trader and sea captain. In 1695, King William III of England commissioned him a privateer to capture certain notorious pirates and to seize goods that they had stolen. Kidd sailed from London in 1696 with a new ship and a hand-picked crew. But an English warship took some members of his crew, and he had to recruit more men in pirate-infested New York.

Kidd left New York in September 1696, and sailed across the Atlantic Ocean. He attacked a merchant fleet off the east coast of Africa. His seizure of two rich ships sailing under French *passes* (commissions) was lawful because England was at war with France. He refused the demands of his ill-tempered crew to attack other ships. But he captured no pirates. Instead, he went to Madagascar, where he made friends with the pirates he had been sent to take.

Many of his men left him, and Kidd returned with one of the ships to the West Indies. There, he learned he had been declared a pirate. He sailed north and left gold, silver, and Indian goods with the Gardiner family on Gardiner's Island, New York. The English government seized this treasure, and Kidd was arrested when he landed at Boston. He was sent to England to be tried for five acts of piracy and for the murder of his gunner, William Moore. Kidd was not allowed to have legal advice, and he could not use his personal papers. He was found guilty and hanged.

Tales and legends quickly grew up about Kidd's supposed buried treasure and bloody deeds. "The Ballad of Captain Kidd" was sung around the world. Many fiction writers, including Washington Irving, Edgar Allan Poe, and Robert Louis Stevenson have used this legend. The most famous stories are Poe's *The Gold Bug* and Stevenson's *Treasure Island*.

**Kidderminster.** See Hereford and Worcester.

**Kidman, Sir Sidney** (1857-1935), was an Australian *station* (ranch) owner. He was born in Adelaide. At the age of 13, he ran away from home to work on a station in western New South Wales. He saved his wages, bought and sold horses, and ran a bullock team. Later, he owned a butcher's shop, a mail coach, and a stock and estate agency. He also bought vast tracts of land in the centre of Australia for grazing cattle. By 1910, he owned 25 stations.

**Kidnapping** is the act of seizing and holding a person against his or her will. The word *kidnap* comes from the two slang words *kid*, or *child*, and *nab*, which means to *steal*. At one time kidnapping referred especially to stealing children. But the word has come to be used also in cases where adults are seized and held.

Slaves were often kidnapped and sold in the slave market. Sailors were *shanghaied*, or kidnapped and forced to work on ships. During the early 1800's, ships were occasionally stopped and entire crews *impressed*, or forced to work on other ships. An illegal arrest is actually a form of kidnapping. Sometimes, fleeing criminals kidnap one or more people and hold them as *hostages* to reduce the chance of being captured. The kidnapping of a woman is sometimes referred to as *abduction*, which may be a separate crime.

Kidnapping for *ransom*, or reward, became common in the United States during the 1920's and 1930's. One of the most famous cases was the kidnapping and killing of the son of Charles A. Lindbergh, an American aviator, in 1932. More recently, kidnapping has been used by political terrorists to try and force governments to concede their demands.

See also **Hostage**.

**Kidney** is a complex organ in human beings and all other vertebrates. The two kidneys perform many vital functions, of which the most important is the production of urine. This fluid carries various waste materials out of the body. If the kidneys fail to function, poisons build up in the body, eventually causing death.

The kidneys look like purplish-brown kidney beans and are about the size of an adult's fist. They lie below the middle of the back on each side of the spine. The right kidney, located under the liver, is a little lower than the left one. Some people are born with only one kidney, but they lead a normal life.

**How the kidneys produce urine.** Human kidneys consist of three layers. These layers are, in order, the *cortex* on the outside of the organ, the *medulla*, and the *pelvis*. Blood flows into the medulla through the *renal artery*. In the medulla and cortex, the renal artery branches into increasingly smaller arteries. Each of these arteries ends in a blood filtration unit called a *nephron*. Two healthy kidneys contain a total of about 2 million nephrons, which filter about 190 litres of blood daily.

A nephron consists of a network of tiny blood vessels, the *glomerulus*, surrounded by *Bowman's capsule*, a two-layer membrane that opens into a *convoluted tubule*. Pressure forces much of the *blood plasma* (fluid portion of the blood) through the glomerulus and into Bowman's capsule. The resulting *tubular fluid*, which contains water and dissolved chemicals, then passes into the convoluted tubule. The portion of the blood that remains in the glomerulus flows into small vessels called *capillaries*, which surround the convoluted tubule. As the tubular fluid flows through the tubule, substances needed by the body are absorbed by the cells of the tubule wall. These substances, which include amino acids, glucose, and about 99 per cent of the water, then rejoin the blood in the capillaries. The capillaries return the blood to the heart by way of the *renal vein*.

Substances not absorbed in the tubule are wastes that the body cannot use. Other wastes are secreted into the tubular fluid by the tubular cells of the kidney. These various substances, which include ammonia, urea, uric acid, and excess water, make up urine. The urine passes from the convoluted tubules into larger *collecting tubules* and then into the *pelvis* layer of the kidney. A tube called the *ureter* carries urine from each kidney into the *urinary bladder*. Urine collects in the bladder until it passes out of the body through another tube, the *urethra*. Healthy kidneys produce from 1 to 2 litres of urine daily.

**Other functions of the kidneys.** In addition to producing urine, the kidneys secrete a hormone called *erythropoietin*, which controls the production of red blood cells. The kidneys also convert vitamin D from an inactive form to an active form. The active form of this vitamin is essential for normal bone development. In ad-

dition, the kidneys help maintain the blood pressure of the body by releasing an enzyme called *renin* (see *Hypertension* [Causes]).

**Kidney diseases.** If one kidney is lost in an accident or by disease, the other may enlarge and do the work of both. But if both kidneys are damaged or lost, waste materials accumulate in the body, causing death.

Kidney infection, called *pyelonephritis*, ranks as the most common kidney disease. Most cases result from infection that spreads upward from the bladder. Unless it is complicated by blockage of the urinary tract, pyelonephritis rarely leads to kidney failure.

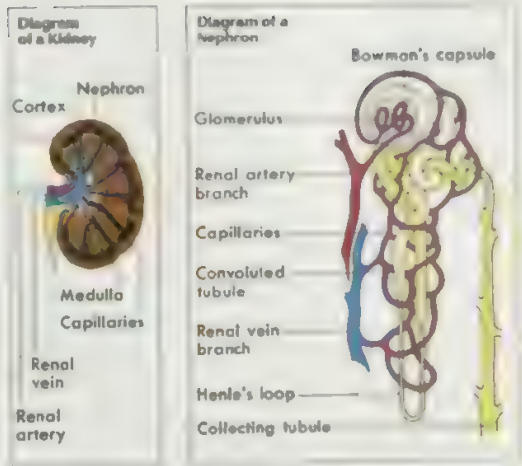
The kidneys also can be damaged by antibodies produced to fight bacteria or viruses elsewhere in the body. Such reactions lead to inflammation of the glomerulus. This type of inflammation is called *glomerulonephritis*, formerly known as *Bright's disease*.

Long-term or severe high blood pressure can seriously damage the kidneys, as can diabetes. Cysts, kidney stones, and tumours may block the flow of urine. The blocked urine can damage the kidneys by exerting pressure, or it may lead to pyelonephritis. Kidney disorders may also result from birth defects, injuries, or accidental poisoning, or as a side effect of certain medications.

Many people who have lost their kidneys or have suffered kidney damage are kept alive by a *dialysis machine*. A tube connects this machine to an artery in the patient's arm. Blood flows into the machine, which removes wastes. Another tube carries the blood back into a vein in the arm. A patient may have to undergo this process, called *haemodialysis*, for several hours, three times a week.

Some kidney patients can use *peritoneal dialysis*, a continuous procedure that does not involve being connected to a machine. In this process, a container of dialysis solution is emptied into the patient's abdominal cavity through a permanently implanted tube. The solution remains there for several hours, picking up wastes from the bloodstream. The patient then drains the used solution and replaces it with a fresh supply.

Other kidney patients have their diseased kidneys re-



**Blood** enters the kidney through the renal artery. In the medulla and cortex, the renal artery divides into increasingly smaller vessels, each of which ends in a filtering unit called a *nephron*. Within each nephron, much of the blood's fluid content filters through the glomerulus into the convoluted tubule. Cells in the tubule wall absorb needed substances from this fluid, leaving the waste materials that make up urine.

placed with a healthy one in a kidney transplant. A replacement organ from a close relative is desirable because it closely matches the patient's tissues. But most replacement organs come from unrelated donors who have died in accidents or from other causes. The patient's body always attempts to reject these "foreign" organs. However, modern medicines are usually able to control the rejection process and save the transplanted kidney.

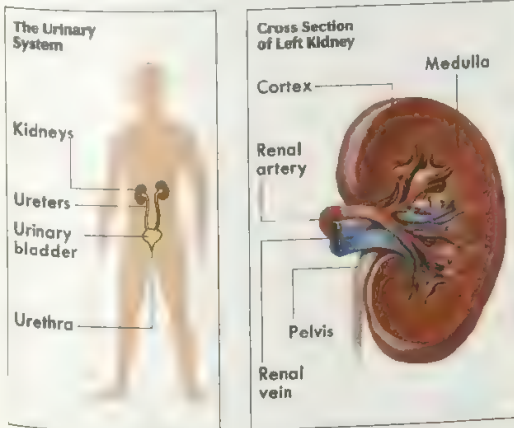
**Related articles in *World Book* include:**

Bladder	Nephritis
Elimination	Tissue transplant
Gout	Urea
Human body (Trans-Vision)	Uraemia
Kidney stone	Urine

**Kidney bean.** See *Bean* (Kinds of beans; picture).

**Kidney stone** is a hard object that forms in the kidneys. Kidney stones range in size from microscopic to about as large as a golf ball. They occur chiefly in men and can cause intense pain if they become stuck in the urinary tract. Most kidney stones consist of calcium salts. In many cases, doctors cannot determine why the stone forms. Some people who develop kidney stones absorb an unusually high amount of calcium from their diet. Excess calcium is eliminated in the urine. However, some of the calcium may crystallize before it leaves the body, forming a stone.

Most kidney stones pass out of the body with the urine, often accompanied by severe pain. When a stone becomes stuck, it may need to be removed by a doctor. In some cases, the doctor can remove it by inserting a flexible tube into the *ureter* (tube that carries urine from the kidneys to the bladder). Doctors also may use a laser or a machine called a *lithotripter* to treat kidney stones. In laser treatment, an *optical fibre*—a thin thread of glass or plastic—is inserted into the ureter until it reaches the



**The kidneys** remove wastes from the blood, producing urine. The urine flows through the ureters into the bladder and eventually leaves the body through the urethra. A cross section of a kidney is shown on the right.



stones. The laser then produces a beam of energy that travels through the fibre and breaks the stones into fragments, which are eliminated with the urine. A lithotripter focuses shock waves on the stones while the patient sits in a water bath. The waves break up the stones.

See also **Kidney**.

**Kidney transplant.** See **Tissue transplant**.

**Kiefer, Anselm** (1945– ), a German painter, is one of a group of artists called *neoexpressionists*, who try to inject emotional and spiritual content into art.

Kiefer's large-scale paintings reflect the physical and psychological destruction of Germany during World War II (1939–1945). His dark, threatening images portray a broken, devastated landscape. However, they also often include images from German legends that express hope. Many of Kiefer's paintings include photographic images and real objects. Kiefer was born in Donaueschingen, near Villingen-Schwenningen.

**Kiel** (pop. 245,682) is a major seaport city in northern Germany. It lies near the eastern (Baltic) end of the Kiel Canal, which links the Baltic Sea and the North Sea (see **Germany** [political map]). Much shipping goes from Kiel to Denmark, Norway, and Sweden. The city's other industries include shipbuilding; fish processing; printing; and the manufacture of ceramics, machinery, and precision instruments. Kiel is an important naval training centre and the site of Christian-Albrechts University, founded in 1665. It serves as the capital of the state of Schleswig-Holstein.

Count Adolf IV, a German noble, founded Kiel in the 1200's. Kiel was heavily damaged during World War II (1939–1945). It was rebuilt along modern lines. Its central shopping and commercial district, with streets reserved for pedestrians only, is a model of city planning. The older section includes the Church of St. Nicholas and many cultural facilities.

**Kiel Canal** is a waterway that provides a short cut for ships from the North Sea to the Baltic Sea. It once was called the Kaiser Wilhelm Canal. Its official German name is *Nord-Ostsee-Kanal* (North-East Sea Canal). It shortens the trip around Denmark by over 480 kilometres. The canal lies in northern Germany. It leads from Brunsbüttelkoog at the mouth of the Elbe River to Holtenau near Kiel, the Baltic seaport after which it was named.

The Kiel Canal was begun by the German government in 1887 and completed in 1895. The canal has since been enlarged. Its width ranges from 102 to 162 metres, and it is 11 metres deep and 98.5 kilometres long. Allied bombs damaged the waterway during World War II (1939–1945).

**Kiely, Benedict** (1919– ), is an Irish literary critic and author. His work is regarded as some of the best of contemporary Irish writing. Among his early novels were *Land without Stars* (1947) and *Call for a Miracle* (1950). Kiely has also published short stories and criticisms of Irish literature. Kiely was born in County Tyrone and educated at the National University of Ireland. He was literary editor of the *Irish Press* and wrote for other Irish newspapers. He also worked on television and radio in Ireland and the United States.

**Kierkegaard, Søren Aabye** (1813–1855), a Danish philosopher and religious thinker, is considered one of the founders of existentialism. He has greatly influenced

religious thought, philosophy, and literature. His many books are concerned with the nature of religious faith, especially Christianity.

**His philosophy.** Kierkegaard held that religious faith is irrational. He argued that religious beliefs cannot be supported by rational argument, for true faith involves accepting what is "absurd." He insisted on the absurdity or logical impossibility of the Christian belief that God, who is infinite and immortal, was born as Jesus Christ, who was finite and mortal.

Kierkegaard cited another example of the absurdity of religion in Genesis 22, where God commands Abraham, for no apparent reason, to kill his only son, Isaac. Kierkegaard found this story of God's unreasonableness so fascinating and important that he wrote an entire book about it, *Fear and Trembling* (1843). He argued that God requires us to hold beliefs and perform actions that are ridiculous and immoral by rational standards. Because Abraham had obeyed God's outrageous commands without trying to understand or justify them, he was Kierkegaard's religious ideal, "the knight of faith."

In the *Concluding Unscientific Postscript* (1846), Kierkegaard argued that nobody can attain religious faith by an objective examination of the evidence, but only by a subjective choice, "a leap of faith." Furthermore, he argued, objective evidence supporting a belief does not make the belief genuine or true. Rather, true belief is measured by the sincerity and passion of the believer. Thus, he concluded that in religion "truth is subjectivity."

Kierkegaard bitterly criticized all attempts to make religion rational. He held that God wants us to obey Him, not to argue for Him. Kierkegaard regarded those who offered rational proofs for religion as having "betrayed religion with a Judas kiss."

Kierkegaard became convinced that many people who were officially Christian and who considered themselves Christians did not possess the unconditional faith demanded by Christianity. He often attacked the Evangelical Lutheran Church of Denmark.

**His life.** Kierkegaard was born in Copenhagen and spent almost his entire life there. He studied at the University of Copenhagen. When he was 22, he learned that his father, as a poor youth, had once cursed God and that his father had seduced his mother before marrying her. These revelations disturbed Kierkegaard so much that he referred to them in his writings as "the great earthquake."

In 1840, Kierkegaard became engaged to a 17-year-old girl, Regina Olson, but he broke off the engagement after about a year. Their affair haunted Kierkegaard throughout his life, and in his writings he frequently attempted to explain and justify his behaviour toward her.

See also **Existentialism**.

**Kiev** (pop. 2,616,000) is the capital and largest city of Ukraine. The city lies in north-central Ukraine on the Dnepr River in a rich agricultural and industrial region. For location, see **Ukraine** (map).

The central area of Kiev is on a high cliff along the western bank of the Dnepr. There, medieval buildings and modern structures stand side by side. A wooded park runs along the face of the cliff. Industrial districts and rows of modern apartment blocks extend in all directions from the centre of the city.

Landmarks of Kiev include St. Sophia's Cathedral and

the Golden Gate of Yaroslav the Wise, both built in the 1000s. The Monastery of the Caves, which has a network of catacombs, also dates from medieval times. The Marinsky Palace and the Church of St. Andrew were built during the 1700s. Kiev has an academy of science, a university, and many museums and theatres.

Kiev is a major manufacturing and transportation centre. Its factories produce aircraft, cameras, chemicals, clothing, precision tools, watches, and other products. The city is a road and rail junction and a river port.

Slavic people established a settlement in Kiev, perhaps as early as the A.D. 600s. Kiev prospered as a trading centre and, during the 800s, became the capital of the first Russian state (see **Union of Soviet Socialist Republics** [Early days; The Kievan state]). By the 1100s, Kiev was one of Europe's greatest centres of commerce and culture. Mongol invaders destroyed most of the city in 1240, and it lost its importance. Kiev was rebuilt in the 1300s. It came under Lithuanian rule in the 1300s and under Polish rule in the 1500s. Russia regained control in the 1600s.

Kiev became the capital of the Ukrainian Soviet Socialist Republic of the Soviet Union in 1934. The Soviet Union had been formed under Russia's leadership in 1922. Kiev was badly damaged again during World War II (1939-1945). The city was rebuilt after the war and has grown and prospered since then. In 1991, following the breakup of the Soviet Union, Ukraine became an independent republic, with Kiev as its capital city.

See also **Ukraine** (picture: Kiev).

**Kiewa Hydro-Electric Scheme**, in the mountains of northeastern Victoria, Australia, harnesses the headwaters of the Kiewa River. The scheme was completed in 1960. Water collected from Bogong High Plains is held at the Rocky Valley reservoir. In its downward flow, this water is forced through three power stations that are located at successively lower levels. The stations are McKay Creek, the largest and highest, Clover, and West Kiewa. The capacity of the scheme is 184,000 kilowatts.

**Kigali** (pop. 156,650) is the capital and largest city of Rwanda. It lies in the centre of the country on a plateau about 1,500 metres above sea level (see **Rwanda** [map]).

Kigali serves as Rwanda's chief market centre. Traders from many parts of the country travel to Kigali to sell their goods. Modern hotels and government and embassy buildings rise above the central area. Over the years, large numbers of rural Rwandans have moved to Kigali in search of jobs. But many people in Kigali suffer from poverty and live in slums.

Kigali developed as a trading centre for caravans during the early 1900s. Rwanda, which had been ruled by Belgium, became independent in 1962. Since then, Kigali has grown from a small town to a crowded city.

**Kikuyu** are the largest ethnic group in Kenya, in East Africa. The Kikuyu, also known as the *Gikuyu*, make up about 20 per cent of Kenya's population. They include some of the most educated and prosperous people in Kenya. Many Kikuyu work in government or business. Other Kikuyu own large farms.

The Kikuyu have lived in what is now Kenya since the 1400s. They speak a language called Kikuyu, or Gikuyu, which belongs to the Bantu family of African languages. The Kikuyu are divided into nine clans. Traditionally, the Kikuyu farmed, and herded sheep and goats. Land was

owned jointly by the members of groups called *mbari*, which consisted of related men.

In 1895, Great Britain seized control of Kenya. Kikuyu life changed greatly under the influence of Western educational and economic systems. British settlers took over land the Kikuyu considered their own. With little land or political power, many Kikuyu lived in poverty. During the 1950s, the Kikuyu led a movement called Mau Mau, which opposed British rule. In 1952, fighting broke out between the British and the Mau Mau. By 1956, when most violence had ended, about 11,500 Kikuyu, 2,000 other Africans, and 145 Europeans and Asians had been killed. The British jailed many so-called rebels, including Jomo Kenyatta, a Kikuyu leader. Thousands of Kikuyu were moved to detention camps, and their homes were destroyed.

After Kenya became independent in 1963, Kenyatta was elected prime minister. His title was later changed to president. The Kikuyu played a major role in the Kenyatta government. Since his death in 1978, however, the new government has worked to equalize power among the Kikuyu and other groups.

See also **Kenya**; **Kenyatta, Jomo**; **Mau Mau**.

**Kikuyu grass** is an African species of grass that is named after the Kikuyu region of Kenya, East Africa. The grass is popular with farmers throughout tropical Africa and in Australia because it is a hardy pasture plant that can survive long, dry summers. It is also popular as a lawn grass because it remains green throughout the year. New growth comes from underground stems or from above-ground creeping stems that send out roots from each joint. Inconspicuous flowers appear on the plants in late spring or early summer. Individual leaves may reach 25 centimetres in length. When used for lawns, kikuyu may become a nuisance by spreading into nearby gardens. Kikuyu grass is also used to bind dry soils together and prevent erosion.

**Scientific classification.** Kikuyu grass belongs to the family Graminae (Poaceae). It is *Pennisetum clandestinum*.

**Kildare** is a county in the province of Leinster in the Republic of Ireland. It is an inland county in the lowland of east central Ireland. Kildare is the centre of Irish horse breeding and training. The main centres of services and manufacturing are Naas and Droichead Nua (New-bridge). Leixlip, the largest town, is a centre for people who commute daily to work in Dublin.

**People and government.** The population in 1991 was 18 per cent higher than in 1981, a greater rise than in any other Irish county. Kildare had the highest birth rate in Ireland and many people moved into the county. Population growth in Kildare was mainly in the north-east, and reflected the expansion of the adjacent city of Dublin.

About 95 per cent of the people are Roman Catholic, with most of the others being members of the Church of Ireland. Both churches have a diocese of Kildare. The Church of Ireland cathedral of St. Brigid is in the town of Kildare on the site of an ancient monastery.

Clongowes Wood College, a Jesuit boys' school, is in Clane. St. Patrick's College, Maynooth, opened in 1795 to train Roman Catholic clergy, but it later became a college of the National University of Ireland. The Irish Military College is at the Curragh, which is the main army camp in the Republic of Ireland.





**The Curragh** in Kildare is a centre for Irish horse racing, breeding, and training.

Five members of parliament represent Kildare in *Dáil Éireann* (lower house of the Republic of Ireland's parliament). Local government administration is by a county council, which meets in Naas. There are urban district councils in Athy, Leixlip, and Naas.

**Economy.** Only one-tenth of people work in farming. Most of the land is grassland. Farmers use it mainly for raising beef cattle, with some dairying and sheep. The main horse-breeding area is the Curragh. The main arable crops are barley, sugar beet, and wheat. They grow mainly in southern Kildare.

Manufacturing accounts for one-fifth of employment. The chief centres are Athy, Naas, and Droichead Nua. The main types of manufacturing are food processing, light engineering, and textiles and clothing. Other products include building materials at Athy, carpets and rope at Droichead Nua, meat processing at Kildare and Salins, and telecommunication equipment at Celbridge.

Three-fifths of Kildare people work in service industries, particularly retail and wholesale distribution. Other major services include defence, education, finance, health, and public administration.

## Facts in brief about Kildare

**Population:** 1991 census—122,516.

**Area:** 1,694 km<sup>2</sup>.

**Largest towns:** Leixlip, Naas, Celbridge, Droichead Nua (Newbridge), Maynooth, Athy, Kildare, Monasterevin, Clane, Kilcullen.

**Chief products:** Agriculture—barley, cattle, horses, milk, sheep, sugar beet, wheat. *Other primary products*—building materials, peat. *Manufacturing*—clothing, food products, metal and engineering goods, textiles.

**Origin of name:** From the Gaelic *Cill Dara* (the church of the oak).

The county's quarries supply stone, sand, and gravel. There is a peat-fired power station at Allenwood and a peat briquette factory at Lullymore. Hydroelectric power stations on the River Liffey are at Golden Falls and Leixlip.

Road and rail routes from Dublin to the west and south of Ireland cross the county. The N4 road and the railway to Sligo and Galway run along its northern boundary. The roads (N7 and N9) and railways from Limerick, Cork, and Waterford converge in the south and centre of the county. The Grand Canal crosses Kildare and joins the River Barrow, but these waterways are used only by pleasure craft.

**Land.** Kildare is bounded by Meath to the north, Dublin and Wicklow to the east, Carlow to the south, and Laois and Offaly to the west. Kildare measures 73 kilometres from north to south and 43 kilometres from east to west.

Kildare is mainly flat or undulating lowland. The land rises in the east toward the Wicklow Mountains. Much of the remainder is peat bog, with a large area in the west forming part of the Bog of Allen. The Curragh is a large area of open grassland. The River Liffey drains the county in the east, the Barrow in the southwest, and the headwaters of the Boyne in the north.

Kildare is one of the driest counties of Ireland, with an average annual rainfall of 85 centimetres. Temperatures average 5° C in January and 16° C in July.

**History.** Historical remains in Kildare show that people have lived there since ancient times. Early kings of Leinster had headquarters at Naas. In the 1100's, the lands of Kildare were granted to the Anglo-Norman family of Fitzgerald, later the earls of Kildare and one of Ireland's strong families. Naas, Kildare, and Athy were Anglo-Norman towns. Later landowners built many fine estates, especially along the Liffey valley. The most famous mansions are Castletown at Celbridge and Carton at Maynooth. The nearness of Dublin has strongly influenced Kildare's history.

**Kilimanjaro** is a dormant East African volcano with two peaks. It lies in northern Tanzania, along the border with Kenya. One peak, Kibo (5,895 metres), is the highest point on the African continent. Kibo peak is always covered with snow and ice about 60 metres deep. Several large glaciers cover the slopes of the peak. The crater of Kibo peak is about 180 metres deep. Mawenzi (5,148 metres), the other peak of Kilimanjaro, does not have glaciers. African farmers grow bananas and coffee on the lower slopes of the volcano. Kilimanjaro provides the setting of "The Snows of Kilimanjaro," a well-known short story by Ernest Hemingway. See also **Kenya** (picture); **Mountain** (picture chart).



**Kildare** is an inland county in the province of Leinster in the Republic of Ireland.



**Kilkenny** is a county in the southern part of the province of Leinster in the Republic of Ireland.

**Kilkenny** is a county in the province of Leinster in the Republic of Ireland. It is an inland county, situated on the southeastern edge of the central lowland of Ireland. Kilkenny City is the only large town in the county. It is the main centre of services and manufacturing.

**People and government.** Kilkenny's population in 1991 was 4 per cent higher than in 1981. Growth was greatest around Kilkenny City and in the south of the county, which is near Waterford City. About 74 per cent of the population live in rural areas.

Nearly 95 per cent of the people are Roman Catholic. Almost all the remainder are members of the Church of Ireland. For both churches, the diocese is Ossory. The Roman Catholic Cathedral of the Assumption, and St. Canice's, the Church of Ireland cathedral, are in Kilkenny City.

Five members of parliament represent Kilkenny and Carlow together in *Dáil Éireann* (lower house of the Republic of Ireland's parliament). A county council in Kilkenny City is in charge of local government administration. The city has a borough corporation.

**Economy.** Much of the land in Kilkenny is fertile farmland. Agriculture accounts for more than one-fifth of employment. Farms average 30 hectares, more than in any other Irish county. Dairy farming and cattle production are the two main types of farming. Arable crops are also important, except on the Castlecomer plateau. Barley, potatoes, sugar beet, and wheat are the main crops. Some farmers raise pigs.

One-fifth of employment is in manufacturing industry. Much of it is in Kilkenny City. Its largest industry is food

processing. Brewing and light engineering are also important. Other industries include machinery, printing, textile manufacturing, and the making of water treatment equipment. The processing of dairy products is the principal food industry, with the largest plant at Ballyragget.

About half of the people in County Kilkenny work in service industries. Retail and wholesale distribution is the leading category, and other services include catering, education, health, public administration, and transport. The government established the Kilkenny Design Centre in order to improve the quality of Irish design.

There is some forestry in upland areas. Clay brick is made at Castlecomer. Kilkenny was once known for polished dark limestone known as black marble.

Two national primary roads (N9 and N10) and a railway run from north to south through Kilkenny. They link Dublin and Waterford. There is a major port in the south near Waterford.

**Land.** Kilkenny is bounded by Laois to the north, Carlow and Wexford to the east, Waterford to the south, and Tipperary to the west. Kilkenny measures 70 kilometres from north to south, and 40 kilometres from east to west.

The lowest parts of Kilkenny lie on limestone. They are mainly in the centre of the county and along its southern and northwestern edges. The Castlecomer plateau in the northeast rises above the surrounding countryside and consists of sandstone and shale. Dunmore cave is open to the public.

Kilkenny is the county of "The Three Sisters," the rivers Barrow, Nore, and Suir, which flow toward Waterford Harbour. Much of the centre and north of Kilkenny is drained by the Nore, which then joins the Barrow. The Suir forms the southern boundary.

The annual rainfall in Kilkenny is 100 centimetres. Average temperatures are 5° C in January and 16° C in July.

**History.** St. Canice founded a church on the site of what is now Kilkenny City in the A.D. 500's. In medieval times, Kilkenny formed much of the Gaelic kingdom of Ossory. One of its kings, Donal MacGillapatrik, founded the Cistercian abbey of Jerpoint near Thomastown in the 1100's. From the late 1100's onward, the Anglo-Normans gained control of the county. They built many castles, monasteries, and churches. The Butlers, earls of Ormond, were the most important family. Their seat was first at Gowran and later at Kilkenny.

Kilkenny City has many medieval remains, including the fine castle overlooking the River Nore and St. Canice's Cathedral. The city played an important role in Anglo-Irish politics in the Middle Ages, being a venue for many parliaments. A parliament in 1366 passed the Statutes of Kilkenny, which were an unsuccessful attempt to prevent the integration of the Anglo-Normans and the Irish. In the 1640's, the city was the seat of the Confederation of Kilkenny, an alliance of old Irish and Anglo-Irish Catholic families. The population of Kilkenny decreased steadily from the 1840's to the 1960's, when it began to grow again.

Many famous people are connected with Kilkenny. They include Owen Roe O'Neill, the great Irish military leader of the 1640's, and the writers George Berkeley (who was born in the county), and George Farquhar and Jonathan Swift (who were educated there).

### Facts in brief about Kilkenny

**Population:** 1991 census—73,613.

**Area:** 2,062 km<sup>2</sup>.

**Largest towns:** Kilkenny, suburbs of Waterford, Castlecomer, Graigueamanagh, Thomastown, Callan.

**Chief products:** Agriculture—barley, cattle, milk, pigs, sugar beet, wheat. Manufacturing—food processing, beer, engineering products, textiles.

**Origin of name:** From the Gaelic *Cill Chainnigh* (the church of St. Canice).



**Killanin, Lord** (1914- ), is an Irish businessman and writer whose achievements have won him international recognition. He was president of the International Olympic Committee from 1972 to 1980.

From 1935 to 1939, he was a newspaper reporter and political correspondent based in London. After distinguished military service in World War II (1939-1945), he moved to Ireland, where his family had been in Galway since the 1300's. In the 1950's, he produced the first of several films in Hollywood.

Michael Morris succeeded his uncle as Baron Killanin in 1927. He was born in London and educated in Paris and at Cambridge University, England. He became vice president of the International Olympic Committee in 1968.

**Killarney** (pop. 7,837) is a town in southwestern Ireland. It is famous for the nearby scenic mountains and woodlands and beautiful Lakes of Killarney. For location, see **Ireland** (map).

Killarney was a quiet market town until it became a centre of tourism during the 1800's. Many tourists stay in Killarney while enjoying the magnificent scenery of the surrounding area. Although a small town, Killarney has about 40 hotels and guesthouses that provide accommodation for visitors. Killarney also is a market centre for the people of the area.

In addition to tourism, the town's leading economic activities include engineering and the manufacture of cranes, processed foods, and textiles. The Cathedral of St. Mary, a Roman Catholic church, is a landmark of the town.

See also **Lakes of Killarney**.

**Killdeer** is a well-known *plover* (shore bird) that ranges from southern Canada to South America. Its loud, shrill cry seems to say *kill-deer*. The bird is about 25 centimetres long, with a greyish-brown back and a white breast marked with two black bands. Killdeers build their nests in shallow depressions in fields. The female usually lays four black-spotted, buff-coloured eggs. When a predator approaches a killdeer's nest or its young, the bird often tries to distract the intruder by dragging one of its wings as if it were broken. Killdeers eat many insects harmful to crops, and are protected by game laws.

See also **Plover**.



A killdeer is a shore bird of North and South America.

**Scientific classification.** The killdeer is in the plover and lapwing family, Charadriidae. It is *Charadrius vociferus*.

**Killer bee.** See **Bee** (Sting).

**Killer whale** is the name of a large dolphin. It measures from 6 to 9 metres long and weighs from 3 to 9 metric tons. It has a glossy black back and a white underside. The killer whale has from 40 to 48 teeth, with 10 to 12 teeth on each side of each jaw. It often travels in groups ranging from two to dozens of animals. The killer whale can probably equal the top speed, 40 kilometres per hour, of the fastest swimming whale, the blue whale. But it probably cannot keep up this speed for as long.

Killer whales feed on salmon and other large fish, and also attack smaller dolphins, and seals and walruses. They have not been known to attack people. The killer whale is found in all the oceans, but especially in cold regions.

**Scientific classification.** The killer whale belongs to the dolphin family, Delphinidae. It is *Orcinus orca*.

See also **Animal** (picture: Animals of the oceans).

**Kilmarnock and Loudoun** (pop. 78,558) is a local government district in Strathclyde Region, Scotland. It includes the industrial town of Kilmarnock and a number of smaller towns, including Darvel, Galston, and Stewarton.

Industries include engineering, whisky blending and bottling, and the manufacture of carpets, knitwear, lace, and shoes. Dairy farming is also important.

See also **Strathclyde Region**.

**Kilmer, Joyce** (1886-1918), an American author, wrote many poems and essays, but is remembered for one short poem, "Trees." The poem first appeared in *Poetry Magazine* in 1913, and was the title poem in Kilmer's collection *Trees and Other Poems* (1914). Some people have objected to the poem's sentimentality and mixed metaphors, but it became popular immediately.

Alfred Joyce Kilmer was born in New Brunswick, New Jersey. He published two other collections of poetry and edited *Dreams and Images* (1917), an anthology of Roman Catholic poets. He was killed in action while serving with the United States Army in France during World War I (1914-1918). His wife, Aline Kilmer, was also a noted poet.

**Kiln.** See **Brick** (Firing bricks); **Cement and concrete** (Burning); **Ceramics** (picture: Special furnaces called kilns).

**Kilo** is a prefix meaning thousand. See **Kilogram**; **Kilometre**.

**Kilogram** is a unit of *mass* (quantity of matter) in the metric system. It is one of the base units in this system of measurement, and its symbol is kg. One kilogram has about as much mass as 1,000 cubic centimetres of water at 4° C. The kilogram is also used to measure weight.

The international measurement standard of mass is a platinum-iridium cylinder with a mass of one kilogram. The cylinder is kept by the International Bureau of Weights and Measures at Sèvres, near Paris.

See also **Metric system**; **Measurement** (Measuring weight); **Gram**; **Weights and measures**.

**Kilohertz** is a unit used to measure the frequency of many kinds of vibrations and waves, such as radio and sound waves. Its symbol is kHz. One kilohertz equals 1,000 *hertz* (cycles per second).

The waves sent out by one radio or television station differ in frequency from those transmitted by other stations. Therefore, a tuner of a radio or TV set may be adjusted to receive individual stations. The numbers on a dial attached to the tuner represent frequency. For example, an AM station heard at 780 on the dial—sometimes labelled 78 or 7.8—broadcasts at 780 kHz.

See also **Frequency band**; **Radio** (Broadcasting power and frequency); **Short waves**.

**Kilometre** is a unit of distance in the metric system. Its symbol is km. One kilometre equals 1,000 metres, a distance of about five-eighths of a mile.

See also **Metric system**; **Mile**.

**Kilowatt** is a unit of electric power. Its symbol is kW. It is used in all countries, including those that usually do not use the metric system. One kilowatt equals 1,000 watts, or 1.34 horsepower. A watt is the power carried by a current of one ampere flowing under an electrical pressure of one volt. Horsepower can be used as a unit to measure electric power in the English system, but because one horsepower equals only 746 watts, the kilowatt is preferred.

A kilowatt-hour equals the work done by one kilowatt in one hour. One kilowatt-hour equals about 1.34 horsepower-hours. The symbol for kilowatt-hour is kW·h.

See also **Ampere**; **Horsepower**; **Volt**; **Watt**.

**Kilt** is a traditional garment of men from the Highlands of Scotland and from Ireland. It is a knee-length, skirt-like garment pleated at the back, but with a plain front. Most Scottish kilts are made of *tartan*, a checked cloth, the design of which is often associated with a particular Scottish clan. The traditional cloth for the Irish kilt is a plain, saffron colour, but some county tartans are used in uniforms for pipe bands. Most kilts are made of fine-spun, woollen cloth. An ornamental pouch called a *sporrán* is often worn in front of the kilt. Traditionally, nothing is worn under the kilt.

The kilt as it is worn in Scotland today is known in Gaelic as the *feileadh beag*, meaning *small* or *short kilt*. Highlanders first began to wear it in the 1720s.

See also **Scotland**; **Tartan** (pictures).

**Kim Il Sung** (1912-1994) was the president of North Korea from 1948, when the country was established, until his death in 1994. He also headed North Korea's Communist Party. As president and party leader, Kim exercised complete control over North Korea's armed forces, economy, educational system, and other aspects of society.

Kim was born in Ch'ilgol-dong, near Pyongyang. His father was a schoolteacher. During Kim's boyhood, his family moved to Jilin (also spelled Kirin), China, and he joined the Communist Party there. During the 1930s and early 1940s, he led Korean guerrilla forces against the Japanese in Korea. Japan had ruled Korea since 1910. Kim was succeeded by his eldest son, Kim Chong Il.

Kim's real name was Kim Sung-ju. He adopted the name of Kim Il Sung in the 1930s.

See also **Korea** (History [North Korea]).

**Kimberley** (pop. 80,082) is the capital of Northern Cape in South Africa. The city is one of the world's most important diamond centres. It lies 1,040 kilometres northeast of Cape Town. For the location of Kimberley, see **South Africa** (map).

Some of the world's largest diamond mines lie near

Kimberley. Factories in Kimberley cut and polish diamonds. Other nearby mines supply asbestos, manganese, and gypsum. A mining museum includes the remains of the famous Big Hole mine.

Prospectors founded Kimberley in 1871 after diamonds were discovered there. The wealth that the diamonds brought to southern Africa was important for the developing economy. In the Boer War of 1899 to 1902, Boer forces besieged Kimberley for 123 days (see **Anglo-Boer Wars**). South Africa's first training school for nurses was set up in Kimberley in 1877.

**Kimberleys** are a group of ranges and plateaus that occupy a large area in the northwestern region of Australia. The Kimberley district is bounded on the east by the Ord River and its tributaries, and on the west by the Fitzroy River and its tributaries. The area is noted for its spectacular beauty. Geologically, it is one of the oldest regions in the world. Most of it is made up of pre-Cambrian sandstone and quartzite. Some peaks reach heights of about 915 metres above sea level.

Much of the land in the Kimberley area is unsuitable for agriculture. Between December and March, heavy rains fall there. The Ord River and its tributaries flow across black soil plains. Wyndham is the chief town of the Kimberley area. In the late 1970s, diamond-bearing kimberlite pipes were discovered in the Kimberleys.

See also **Ord River**.

**Kimono**. See **Japan** (Clothing); **Clothing** (picture).

**Kincardine and Deeside** (pop. 52,625) was a local government district in the southern part of Grampian Region, in Scotland. In April 1996, it became part of Aberdeenshire Council. It is an area of mountains and desolate moorland. Inland there is much fertile farmland. Many tourists visit the area each year.

See also **Grampian Region**.

**Kincardineshire**. See **Grampian Region**.

**Kindergarten** is a class or small school for young children usually between the ages of four and six. Kindergarten children spend several hours daily with a teacher who helps them to learn through playing and other activities such as art, music, language arts, physical education, and science. The German educator Friedrich Fröbel created the word *kindergarten* in the mid-1800s. The name comes from two German words that mean *garden of children*.

### Kindergarten activities

In kindergarten, children are generally free to express their ideas by talking. Talking to a group increases a child's poise and command of language. Kindergarten pupils also express themselves with paint, clay, and other creative materials.

**Group activities.** Kindergarten days often begin with a discussion time. This period gives each child a chance to report any interesting experiences to other children. Many kindergarten activities are designed to help the children learn to adjust their own plans to those of others. Taking turns and being quiet while others speak help them develop self-control.

During the day, each child often has a special task to do for the group. For example, one waters the plants, and others help with the midmorning snack. The teacher may write tasks on the board, often using pictures along with words. The children learn to read and print their



names, and they get an idea of the importance of the written word.

The teacher tries to encourage the personality development of each child in both individual and group activities. The teacher tries to guide the children to work in their own way, to the best of their abilities. As a result, the children learn to deal with their problems.

Other group activities help children understand numbers. These activities include measuring, comparing, counting, and matching quantities.

**Formal and informal activities.** Kindergarten children are free to choose many of their activities. The room may be filled with small groups of three, four, or five youngsters working and playing together. Some of the older children are ready to work with larger groups and to work in a more organized way. So the kindergarten has some periods that are usually planned in advance. Many kindergartens use part of their outdoor time for an organized game. Music time is often a period when all the children sing or dance or listen together.

Some teachers and parents believe there should be more formal, organized periods. They believe that a kindergarten should closely resemble primary school and help youngsters to adjust to less talking and moving about. Some kindergartens introduce formal work in mathematics, science, and other traditional subjects. However, other parents and teachers believe that the informal kindergarten is the best preparation for primary school.

### The room and the equipment

**The kindergarten room** is usually big enough for the children to move about freely and to make large buildings out of blocks. A kindergarten may have its own outdoor play space. Youngsters develop their physical skills and coordination by climbing, running, and taking part in other active play.

**Equipment** in a kindergarten consists largely of materials that children can manipulate and work and play with. There are a sandbox and toys, including blocks of all sizes and shapes. Some schools may even have a workbench with real tools. At these areas, carefully supervised children are taught to sand wood, use a saw, and hammer nails. Art materials include paints and brushes, easels, finger paints, crayons, markers, coloured pencils, and clay.

Dramatic play is an important kindergarten activity. The room may include a centre for playing make-believe that contains equipment and materials like those found in homes.

Music plays a big part in the kindergarten day. Frequently the room has a piano and a record player. The youngsters learn or create songs and sing them with the teacher. They beat rhythms with drums, cymbals, and triangles.

Most kindergartens have a variety of interesting and attractive books. Teachers read stories to the children and show them pictures from the books. They encourage children to examine the books and to "read" them.

The outdoor playground often has a large structure for climbing, to build the children's physical strength and muscular coordination. Kindergarten children usually do not climb only for climbing's sake. Their imagina-

tion changes boxes and boards into cars, aeroplanes, and ships.

### The kindergarten teacher

Most kindergarten teachers are women, and they usually have specialized training. A good kindergarten teacher enjoys working with young children. Teachers must have patience and the ability to talk to a child on the child's level. Teachers help boys and girls become more independent. They must also help the youngsters with clothing and with the development of good health habits. Many kindergartens employ adult helpers to assist the teachers.

### History

**Early kindergartens.** Friedrich Fröbel, the father of the kindergarten movement, started his first kindergarten in Blankenburg, Germany, in 1837. Other educators had established schools for educating young children, but Fröbel was the first to name the school a kindergarten. In 1828, Fröbel wrote: "I shall not call this an infant school, because I do not intend the children to be schooled, but to be allowed under the gentlest treatment to develop freely."

Fröbel's theory had a strong religious base. He wished to teach children about the unity of God, humanity, and nature. He believed that children could learn about such unity through symbolic representations. He developed a variety of instructional materials, which he called *Gifts*, to serve as such representations. Fröbel's Gifts included wooden spheres, cubes, and cylinders, and soft, brightly coloured yarn balls.

Before Fröbel established his kindergarten, the Welsh-born social reformer Robert Owen had set up infant schools at New Lanark, Scotland, and New Harmony, Indiana, U.S.A. Owen believed that teaching children good behaviour and moral attitudes would help create an ideal society. See Owen (Robert).



Kindergarten children often work in small groups under the supervision of their teacher. The youngsters shown above are listening to their teacher read during a storytelling session.

The first kindergartens established outside Germany served children from both underprivileged and wealthy homes. Many early kindergartens were privately supported by charities. They aimed at providing good experiences for children as young as 3.

The number of kindergartens increased rapidly during the early 1900's. Teacher-training schools gave increased attention to the preparation of kindergarten teachers. Many communities recognized the value of kindergarten training, and provided funds for enriching the teaching programme.

See also Fröbel, Friedrich Wilhelm August; Nursery school.

**Kinesics** is the scientific study of the body movements involved in communication, especially as they accompany speech. These movements include gestures, facial expressions, eye behaviour, and posture. The movements studied by kinesic scientists are commonly called *body language* or *nonverbal behaviour*. However, these terms are too vague to describe the theory and method of kinesics.

Kinesics was developed by the American anthropologist Ray L. Birdwhistell. Birdwhistell used slow-motion films of conversations to analyse the speakers' behaviour. Birdwhistell reported the results of his findings in the books *Introduction to Kinesics* (1952) and *Kinesics and Context* (1970).

Birdwhistell recognized that kinesics was only one of several overlapping systems that together made up human communication. While other scientists studied the patterns of sound constituting language, he focused on the structure of body movement. He borrowed many terms and techniques from linguistics to identify the basic motions that made up meaningful gestures and other behaviour.

Birdwhistell believed that the meaning of any kinesic behaviour could be determined only by analysing the context in which the behaviour occurred. Therefore, he was chiefly concerned with how and when certain types of behaviour appeared. He also studied what forms these types of behaviour took in relation to the other movements and speech of everyone involved in the communication.

**Kinetic energy.** See Energy (Kinetic energy); Motion (Momentum and kinetic energy).

**Kinetic theory of gases.** See Gas (How gases behave); Maxwell, James C.

**Kinetoscope.** See Film industry (The invention of films).

**King** is a title denoting sovereignty. In many eastern countries, the king or emperor was once considered to be the representative of a god or a divine family. In Europe, many Teutonic tribes elected a king only in wartime. He ruled a tribe, not a territory. When the tribes were converted to Christianity, the king's prestige increased. The church crowned him and supported the idea that he was the source of justice in the realm as the vice regent of God. However, the king was not all-powerful but was considered bound by his people's customary laws.

From these roots grew the idea of a responsible monarchy. In Great Britain and other European countries, the monarch possesses little authority. In other kingdoms, however, the ruler has virtually absolute power.

**Related articles.** For information about specific kings, see names of individuals; for example, Henry. See also  
 Coronation Queen  
 Crown • Royal household of Great Britain  
 Divine right of kings  
 Emperor Sovereignty  
 Primogeniture Viceroy  
 Prince consort

**King, Billie Jean** (1943– ), an American tennis star, became one of the greatest women players in history. In 1972, she won the women's singles title in three of the most important tennis tournaments—the United States Open Championships, the All-England (Wimbledon) Championships, and the French National Championships. She also won the United States Open in 1967, 1971, and 1974 and the Wimbledon in 1966, 1967, 1968, 1973, and 1975. King won a total of 20 Wimbledon championships in singles, women's doubles, and mixed doubles, which set a record for that tournament.

Billie Jean Moffitt King was born in Long Beach, California. She enrolled in the city's tennis programme when she was 11 years old and quickly became one of the top young amateur tennis players in the United States. King turned professional in 1968, the first year that major tournaments were open to professional tennis players. She became an important force in making a success of women's professional tennis. In 1971, King won 19 tennis tournaments and became the first woman tennis player to earn 100,000 U.S. dollars in a single year.

**King, Martin Luther, Jr.** (1929–1968), a black American Baptist minister, was the main leader of the civil rights movement in the United States during the 1950's and 1960's. He won the 1964 Nobel Peace Prize for leading nonviolent civil rights demonstrations.

In spite of King's stress on nonviolence, he often became the target of violence. White racists threw rocks at him in Chicago and bombed his home in Montgomery, Alabama. Finally, violence ended King's life at the age of 39, when an assassin shot and killed him.

Some historians view King's death as the end of the civil rights era that began in the mid-1950's. Under his leadership, the civil rights movement won wide support among whites, and laws that had barred integration in the Southern States were abolished. King became only the second American whose birthday is observed as a national holiday. The first was George Washington, the nation's first president.

**Early civil rights activities.** King was born on Jan. 15, 1929, in Atlanta, Georgia. His father was pastor of the Ebenezer Baptist Church in Atlanta.

King was ordained a minister in 1948. He studied for degrees in divinity and theology, obtaining a doctorate from Boston University in 1955. In Boston, he met Coretta Scott, a music student. They were married in 1953. In 1954, King became pastor of the Dexter Avenue Baptist Church in Montgomery, Alabama.



Billie Jean King





King led the 1963 March in Washington, D.C., from the Washington Monument to the Lincoln Memorial. His stirring plea for racial equality and justice was a high point of the massive demonstration.

King's civil rights activities began in 1955 with a protest against Montgomery's segregated bus system. Black leaders urged blacks to *boycott* (refuse to use) the city's buses. The leaders formed an organization to run the boycott, and asked King to serve as president.

Terrorists bombed King's home, but King continued to insist on nonviolent protests. Thousands of blacks boycotted the buses for over a year. In 1956, the U.S. Supreme Court ordered Montgomery to provide equal, integrated seating on public buses. The boycott success won King national fame and identified him as a symbol of Southern blacks' new efforts to fight racial injustice.

With other black ministers, King founded the Southern Christian Leadership Conference (SCLC) in 1957 to expand the nonviolent struggle against racism and discrimination. At the time, widespread segregation existed throughout the South in schools, and in transportation, recreation, and such public facilities as hotels and restaurants. Southern states also used various methods to deprive blacks of their voting rights.

**The growing movement.** In the 1960's, civil rights protests expanded further. Early in 1963, King and his SCLC associates launched massive demonstrations to protest at racial discrimination in Birmingham, Alabama, one of the South's most segregated cities. Soon afterward, President John F. Kennedy proposed a wide-ranging civil rights bill to the U.S. Congress.

King and other civil rights leaders then organized a massive march in Washington, D.C. On Aug. 28, 1963, over 200,000 Americans, including many whites, gathered at the Lincoln Memorial in the capital. The high point of the rally was King's stirring "I Have a Dream" speech, which eloquently defined the moral basis of the civil rights movement.

The movement won a major victory in 1964, when the U.S. Congress passed the civil rights bill that Kennedy and his successor, President Lyndon B. Johnson, had recommended. The Civil Rights Act of 1964 prohibited racial discrimination in public places and called for equal opportunity in employment and education. King later received the 1964 Nobel Peace Prize.

In 1965, King helped organize protests in Selma, Ala-

bama, against the efforts of white officials there to deny most black citizens the chance to register and vote. Within a few months, the U.S. Congress approved legislation eliminating all barriers to Southern blacks' right to vote. By 1965, King had come to believe that American civil rights leaders should pay more attention to the economic problems of blacks. In 1966, he helped begin a major civil rights campaign in Chicago, his first big effort outside the South. The campaign met resistance from some whites. But eventually Chicago city officials promised to encourage fair housing practices in the city.

Continued violence against civil rights workers in the South frustrated many blacks. Some black leaders urged a more aggressive response to the violence and began to use the slogan "Black Power." King repeated his commitment to nonviolence, but disputes among civil rights groups over "Black Power" suggested that King no longer spoke for the whole movement.

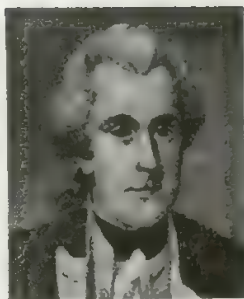
In 1967, King became more critical of American society than ever before. He began to plan a Poor People's Campaign that would unite poor people of all races in a struggle for economic opportunity. Also in 1967, King attacked U.S. support of South Vietnam in the Vietnam War (1957-1975).

**King's death.** While organizing the Poor People's Campaign, King went to Memphis, Tennessee, to support a strike of black refuse collectors. There, on April 4, 1968, King was shot and killed. James Earl Ray, a white drifter and escaped convict, pleaded guilty to the crime in March 1969 and was sentenced to 99 years in prison. People throughout the world mourned King's death. Some months later, the U.S. Congress passed the Civil Rights Act of 1968, which prohibited racial discrimination in the sale and rental of most housing in the United States.

In 1983, the U.S. Congress declared a federal holiday honouring King. The day is celebrated in the United States on the third Monday in January.

**King, Philip Gidley** (1758-1808), was governor of New South Wales, Australia, from 1800 to 1806. He encouraged exploration, organized the settlement of Van Diemen's Land (now Tasmania), kept food at a reason-

able price, and tried to stabilize money in the colony. He also transferred the inhabitants of the Norfolk Island settlement to Van Diemen's Land. But he was unable to control the officers of the New South Wales Corps.



Philip Gidley King

King was born at Launceston, Devon, in England. In 1787, he sailed as lieutenant on H.M.S. *Sirius* in the First Fleet. From 1788 to 1796, he commanded the Norfolk Island settlement.

**King, Stephen** (1947- ), is a popular American writer of thrillers and horror fiction. King is chiefly a storyteller whose plots explore the effects of evil and fear. He often creates terrifying situations out of apparently ordinary modern characters and places.

King's first novel, *Carrie* (1974), is about a schoolgirl who uses supernatural powers to gain revenge on her bullying classmates. *The Shining* (1977) describes what happens when a family becomes stranded in a hotel haunted by evil spirits. In *Firestarter* (1980), a child who can start fires with her mind is stalked by a killer. *Christine* (1983) concerns a car possessed by an evil spirit.

King's other novels include *Salem's Lot* (1975), *The Stand* (1978), *The Dead Zone* (1979), *Cujo* (1981), *Pet Sematary* (1983), *It* (1986), *The Eyes of the Dragon* (1986), *Misery* (1987), and *The Dark Half* (1989). King wrote *The Talisman* (1984) with Peter Straub. He wrote *Thinner* (1985) and other novels under the name Richard Bachman. Most of his novels have been made into films.

King's short stories have been collected in *Night Shift* (1978), *Different Seasons* (1982), and *Skeleton Crew* (1985). He discussed horror in books, films, and television in *Danse Macabre* (1981). Stephen Edwin King was born in Portland, Maine.

**King, Tom** (1933- ), a British Conservative politician, was secretary of state for defence from 1989 to 1992. His previous posts in the Cabinet were secretary of state for the environment from January to June 1983, secretary of state for transport from June to October 1983, secretary of state for employment from 1983 to 1985, and secretary of state for Northern Ireland from 1985 to 1989.

Thomas Jeremy King was educated at Rugby School and Cambridge University. He was a business executive until his first junior ministerial appointment in 1972. He was first elected to Parliament in 1970.

**King, Sir Truby** (1858-1938), a New Zealand doctor and welfare specialist, founded the Royal New Zealand Society for the Health of Women and Children, commonly called the *Plunket Society*, in 1907. While working as medical superintendent of the Wellington Hospital and the Dunedin Mental Hospital, King evolved a system of child welfare and training for children's nurses. The system became known as the *Karitane*, or *Plunket System*. In 1923, he arranged for a woman to go from New Zealand to start the system in Australia. Frederick Truby King was born at New Plymouth.

**King Arthur.** See Arthur, King.



The King Charles spaniel has a long, silky coat.

**King Billy.** See Lanney, William.

**King Charles spaniel**, a dog that came from China or Japan, was a favourite with English nobility in the 1600's. It weighs from 3.6 to 6.3 kilograms and has a round head, with a short, turned-up nose. The dog's wavy coat grows thickly, with a mane around its neck and long hairs called *feathers* on its feet. The King Charles spaniel is black and tan. There are also three similar kinds of spaniel. The *Tricolour* is black, tan, and white; the *Blenheim* is red and white; and the *Ruby* is all red.

**King crab.** See Horseshoe crab.

**King George Sound** is one of the finest harbours in Australia. It lies on the southern coast of Western Australia. The Port of Albany stands on Princess Royal Harbour, the western part of the sound. The sound is sheltered by an isthmus and has two inner harbours that can be reached through narrow straits. Within the sound are a number of islands. George Vancouver, the British explorer, discovered the sound in 1791. He named it *King George III's Sound*.

**King Horn** is the name given to one of the earliest surviving English romances in verse. The poem dates from the 1200's. Its hero, Horn, is the son and heir of the king of Suddene. Saracens conquer Suddene and set Horn adrift in a boat. He lands in Westernesse, where the king's daughter, Rymenhild, falls in love with him. Horn is banished and goes to Ireland, where he fights for a local king. With a band of warriors, he returns to Westernesse in time to prevent Rymenhild's marriage to an undesirable suitor. He marries Rymenhild and reconquers Suddene.

**King Island** lies at the western approach to Bass Strait, between Tasmania and the mainland of Australia. The island has an area of 110,000 hectares. The land is mostly flat and supports beef and dairy cattle, sheep, and pigs. Currie is the island's chief town. It has a popu-



lation of 700. Grassy is a mining centre. Nearby are the world's largest deposits of *scheelite*, a tungsten ore. The island was discovered in 1798, and named after Philip Gidley King, the governor of New South Wales, in 1801.

**King James Version.** See Bible (The King James Version).

**King Lear.** See Shakespeare, William (Shakespeare's plays).

**King Leopold Range,** in Western Australia, flanks the Kimberley area and extends almost to Collier Bay in the northern part of the state. For location, see **Western Australia** (map). The highest peaks in the range include Mount Ord (936 metres above sea level) and Mount Broome (927 metres above sea level). The Fitzroy River cuts through the range below Fitzroy Bluff. In 1879, Alexander Forrest explored the range, naming it after King Leopold II of Belgium.

**King Philip's War.** See Philip, King; Indian wars (King Philip's War).

**King snake.** See Kingsnake.

**Kingdom** is the largest unit of biological classification. All living organisms belong to a kingdom, but no organism belongs to more than one. Scientists group organisms in a kingdom because the organisms share certain basic characteristics. Most biologists recognize five kingdoms of organisms. These kingdoms are (1) Monera (monerans), also called *Prokaryotae*, (2) Protista (protists), (3) Fungi (fungi), (4) Plantae (plants), and (5) Animalia (animals). Scientists do not classify viruses in any kingdom because these microbes are not considered living organisms. Unlike living organisms, viruses do not consist of cells (see **Virus**).

**Monera** is made up of bacteria and blue-green algae, also known as *cyanobacteria*. Monerans are simple, one-celled organisms that can only be seen with a microscope. Moneran cells lack specialized parts called *organelles* and thus differ from other living cells. For example, in all other living cells, genetic material is concentrated in an organelle called the *nucleus*. Moneran cells have genetic material, but they do not have a nucleus. See **Monera**.

**Protista** consists chiefly of microscopic organisms, such as diatoms and protozoans, that often live in colonies. Most protists, like monerans, consist of a single cell. All other living things are *multicellular*—that is, they are made up of many cells.

Unlike the monerans, protists have a well-defined nucleus in their cells. Many also have specialized body parts that they use to gather food and to move in their environment. Scientists divide protists into groups based on how these organisms move about. For example, *ciliates* move by beating hairlike structures called *cilia*. *Zooflagellates* use a long tail called a *flagellum* to move. See **Protista**.

**Fungi** are multicellular organisms that obtain their food from dead or living organic matter. Organisms in this kingdom include moulds, mushrooms, and yeasts. Fungi secrete certain proteins called *enzymes* into the plants, animals, and decaying organisms on which they live. The enzymes help to break organic molecules into nutrients that the fungus can absorb. See **Fungi**.

**Plantae** is made up of such multicellular organisms as flowering plants, grasses, and trees. Most plants make their own food in a complex process called *photo-*

*synthesis* (see **Photosynthesis**). However, some flowering plants live on other plants and absorb their food. Plants are essential to the cycle of nature and provide food for animals and other organisms. See **Plant**.

**Animalia** consists of multicellular organisms that *ingest* (take in and digest) their food. Animals depend on plants or on animals that eat plants for food. Animals have the most complex body features of living things. The cells of most animals are organized into tissues that perform special tasks. The tissues form organs—such as the brain, heart, and stomach—that, in turn, make up organ systems. See **Animal**.

See also **Classification, Scientific**.

**Kingdom of the Two Sicilies.** see Sicilies, Kingdom of the Two.

**Kingfish** is the name given to several different fishes. These include two important food fishes of the mackerel family and the northern kingfish, or king whiting, of the croaker family.

The *kingfish*, or *king mackerel*, belongs to the same family as the Spanish mackerel. It lives out in the Atlantic Ocean from Brazil to the northeastern United States. This fish usually weighs about 2.5 kilograms, but large ones may grow up to 1.7 metres long and weigh almost 36 kilograms. Like the Spanish mackerel, it has sharp, V-shaped tail fins, a bluish back, and brown side spots, but it is longer and thinner. A relative without spots, the *cero*, is also called kingfish.



The **king mackerel** has a sharp, V-shaped tail fin and a bluish back. This type of kingfish lives in the Atlantic Ocean and is an important food fish.

The *northern kingfish* is found off the east coast of the United States. It is silvery with dark grey stripes on its back and sides and usually grows about 30 to 45 centimetres long. It has a single barbel on its chin. This fish lives on the sea bottom, where it eats small fish, shellfish, and worms. Cold weather drives it out to deeper water.

Some other fish of different families are called kingfish, such as the kingfish or cavalla of the Indo-Pacific, and the yellowtail kingfish of the South Pacific and Australian waters.

**Scientific classification.** The kingfish (king mackerel) belongs to the mackerel family, Scombridae. It is *Scomberomorus regalis*. The northern kingfish belongs to the croaker family, Sciaenidae. It is *Menticirrhus saxatilis*. The cavalla and yellowtail kingfish belong to the family Carangidae.

See also **Mackerel**.

**Kingfisher** is the name of a large family of birds that have large heads and long, heavy, pointed bills. There



**Kingfishers** live in woods or by water. The European kingfisher, *far left*, is a water bird. It flies back to its streamside perch before eating its prey, a small fish. The white-tailed kingfisher, *left*, is a woodland species found in the tropical forests of northern Australia and New Guinea. It eats insects, such as the prey mantis

are about 85 species of kingfishers. Many of them have a crest on the top of the head. All kingfishers have short legs and short stubby tails. The outer and middle toes of these birds are joined together by strong membranes. Kingfishers live throughout the world, but a wider variety of species are found in tropical areas.

The kingfisher family is made up of both woodland and water birds. The *kookaburra*, commonly found in Australia, is an example of a woodland kingfisher (see *Kookaburra*). The *European kingfisher* lives by water.

Woodland kingfishers feed mainly on insects. Their bill is flattened from top to bottom. Fish-eating kingfishers have a bill flattened from side to side. Some fish-eating kingfishers such as the *European kingfisher* also take insects. Kingfishers often dive on their prey from a perch but they may also hover over water like a hawk, or pursue insects on the wing with a fast swooping flight.

Kingfishers that live by water make their nests at the end of tunnels in sandy banks. Both sexes dig the nest tunnel. Woodland kingfishers usually nest in hollows in trees.

**Scientific classifications.** Kingfishers make up the kingfisher family, Alcedinidae. The *European kingfisher* is *Alcedo atthis*, and the *Australian kookaburra* is *Dacelo novaeguineae*.

**Kinglet** is a small, dainty, olive-green bird with a bright *crown* (patch) on top of its head. Two kinds, the *golden-crowned* and the *ruby-crowned*, live in North America. Kinglets are about 10 centimetres long. They flit about rapidly, looking for insects.

Kinglets live in evergreen trees. Their cup-shaped nests hang near the tips of branches. The nests are made of moss, grass, and feathers. The female lays from 5 to 11 creamy-white eggs that have brown spots. Many golden-crowned kinglets stay in North America during winter; most ruby-crowned kinglets fly to the southern United States or Central America until spring.

Other very closely related birds are the *goldcrest* of Europe and Asia, and the *firecrest* of Europe, Asia Minor and North Africa. There is also a species of firecrest that lives only on the East Asian island of Taiwan.

**Scientific classification.** Kinglets belong to the kinglet family, Sylviidae, genus *Regulus*. The golden-crowned kinglet is *R. calendula*, the ruby-crowned kinglet is *R. ignicapillus*, the goldcrest is *R. regulus*, and the firecrest is *R. ignicapillus*.

**Kingmaker.** See Warwick, Earl of.

**Kings, Books of**, are two books in the Old Testament of the Bible. They are grouped as one book in the Hebrew Bible. The books begin just before the death of King David, about 965 B.C., and cover almost 400 years of events. Kings conclude with the collapse of the Kingdom of Judah and the exile of many Judeans to Babylon in 587 or 586 B.C. For more information on these events, see **Jews** (The divided kingdom; invasions and conquests). The books mention all the kings of Israel and Judah. Some kings, such as Solomon, Ahab, Hezekiah, and Josiah are discussed more fully than others.

The Books of Kings were probably compiled during the exile, using court records and other historical information in order to sustain hope for national revival. However, they should not be considered strict history. The books select and interpret events according to the idea that God demanded obedience and loyalty. They evaluate every king according to whether or not "he did what was evil/right in the sight of the Lord."

See also **Bible** (Books of the Old Testament).



The golden-crowned kinglet is one of two kinds of kinglets that live in North America. The small, dainty bird gets its name from the yellow crown on top of its head.





Manuscript illustration of the 1300s

**William I** was crowned in Westminster Abbey on Christmas Day 1066. His coronation followed Anglo-Saxon form.



Manuscript illustration in *Chronicle of England* by Peter of Langton 1470-1480

**Henry II** ruled a large empire that included England and a number of possessions in France.



Manuscript illustration from *De Rege Johanne*, early 1300s

**John**, like other Norman kings, enjoyed hunting deer. Venison, a food of the nobility, was denied to ordinary people.



Painting attributed to Robert Peake the Elder

**Elizabeth I** was attended in public processions by many knights and ladies-in-waiting.



Painting by Weop

**Charles I** was convicted of treason and was beheaded on Jan. 30, 1649. The painter of this picture is said to have witnessed the execution.

## Kings and queens of Britain and Ireland

**Kings and queens of Britain and Ireland.** In the past, kings and queens had great power in Britain and Ireland. Today, the *monarch* (king or queen) in Britain has little power but is still highly respected. He or she serves as a figurehead and a symbol of unity for people in Britain and the Commonwealth. The Republic of Ireland has no monarch.

The monarch's role in British politics is part of the un-

written British constitution. As a constitutional monarch, the king or queen is head of state. He or she *reigns* (holds office) with the aid and agreement of an elected Parliament. The Parliament provides the government.

The monarch's duties are now mainly ceremonial. But a king or queen still has several important rights. For example, if a prime minister resigns, the monarch has the *prerogative* (right) to name his or her successor.



Caricature by James Gillray, 1792, National Portrait Gallery, London

**George III** was said to be mean. A cartoonist mockingly shows how little he spent on food.



Lithograph by T. Merry, 1885

**Victoria** lovingly reigned over the British Empire. Its members are depicted here. The troubled land of Ireland stands apart.



**Elizabeth II** won the hearts of the British people. In 1977, they celebrated her silver jubilee.

Before the 1600's, kings and queens had much more power than they have today. They led the nobility and managed state affairs through ministers they appointed. They also formed government policy. Parliament was only an advisory council. But by the 1600's, wealthy businessmen and merchants had entered Parliament, and they demanded a share in the national government. In the 1640's, Parliament and its supporters defeated the reigning king, Charles I, in a civil war. Charles was executed in 1649, and the monarchy was abolished. It was restored in 1660. After that date, however, Parliament

gradually took control of the government and the monarch's power declined. The kings who ruled from 1714 to 1837 took little interest in government affairs or tried to interfere too much, and as a result, the monarchy also lost respect and dignity. In the 1800's, Victoria, a wise and capable queen, revived the respect and dignity of the monarchy.

Kings and queens reigned in the British Isles long before the emergence of England, Ireland, Scotland, and Wales as separate countries. Powerful chiefs were ruling Celtic-speaking tribes in Britain when the Romans first arrived in the 50's B.C. Celtic kingdoms existed in Ireland around the time of Jesus Christ. Anglo-Saxons invaded Britain in the A.D. 400's and conquered much of the island. By the 600's, Britain's Celtic kings and princes ruled only in Cornwall, Wales, and part of Scotland.

The Danish king Canute, who reigned in England from 1016 to 1035, was the first effective king over all England. Malcolm II, who reigned from 1005 to 1034, was the first monarch to rule what is now roughly modern Scotland. Wales came under the control of an English king, Edward I, in 1282. In 1536, during the reign of Henry VIII, Parliament passed an Act of Union that joined England and Wales. In 1603, a Scottish king, James VI, became James I of England, thereby uniting the English and Scottish crowns.

Ireland had many minor kings before the 1100's. Some of these kings became powerful and claimed the title *Ard Ri* (High King) of Ireland. In 1172, after the Anglo-Norman invasion of Ireland, Henry II of England declared himself Overlord of Ireland. Succeeding English monarchs ruled as Lords of Ireland until the 1500's. In 1541, a Parliament in Dublin granted Henry VIII the title *King of Ireland*.

In 1707, the English and Scottish parliaments passed an Act of Union that established the United Kingdom. In 1800, another Act of Union brought Ireland into the United Kingdom. In 1921, after the partition of Ireland, the six counties of Northern Ireland remained part of the United Kingdom. But the rest of Ireland, set up in 1923 as the Irish Free State, stood outside the United Kingdom and eventually became a completely independent republic in 1949. Yet the British monarch's official title preserves Britain's link with the whole of Ireland and also with the former British Empire. The monarch's full title is *King (or Queen) of Great Britain, Ireland, and the British Dominions Beyond the Seas*.

This article discusses in more detail the kings and queens who took part in the historical development of the monarchy in Britain and Ireland. For further information on people, events, and developments mentioned in the following pages, see the related articles listed at the end of this article.

### Early rulers

The earliest kings and queens in the British Isles probably arose many thousands of years after the first human beings appeared. People did not start living in settled communities until the New Stone Age, which began in the British Isles between about 4000 and 3000 B.C. New Stone Age people built houses and ran farms. They formed organized societies. In the course of time, each community elected a leader, mainly for defence. In the late New Stone Age, warlike groups of people, in-



cluding the Beaker Folk, entered Britain. These groups or tribes had military leaders. In the Bronze Age, many tribes were ruled by a warrior class.

About 700 B.C., Celtic people skilled in the use of iron for weapons and tools reached Britain from central Europe. These Iron-Age Celtic tribes were ruled by warrior-chiefs. Archaeologists believe that, among Celts, men and women were equal as rulers.

By 100 B.C., fully developed military kingdoms existed in Britain. The most advanced kingdoms were those of the *Belgae* of southern Britain. The Belgae were a collection of Celtic tribes who came from northern France. In the 50's B.C., the Belgae came to the support of the *Gauls* (Celts) of France, who were rebelling against Roman rule. As a result, in 55 and 54 B.C., Julius Caesar and his Roman legions invaded southeastern Britain to punish the Belgic tribes. Commius, king of the Atrebatians, whose kingdom lay in the area of modern West Sussex, acted for a time as Caesar's personal representative. But Cassivelaunus, king of the Catuvellauni, whose kingdom lay in the area of modern Hertfordshire, tried to rally other kings against the Roman invaders.

Cassivelaunus was an able soldier. He harassed the Romans with his charioteers. But Caesar defeated him and for a time seized his kingdom. Later, Caesar allowed Cassivelaunus to make terms.

After Caesar withdrew his troops in 54 B.C., trade grew up between Rome and Britain. Many British kings prospered. Cymbeline (Conubelinus), Cassivelaunus' great-grandson, was a capable ruler who profited from Romano-British commerce. But when the Emperor Claudius invaded Britain in A.D. 43, Cymbeline's son, Caratacus, went to Wales and led anti-Roman resistance. In 51, Caratacus, who had been betrayed by Cartimandua, queen of the Brigantes, was captured by the Romans. But the British resistance continued. In 61, Boadicea (Boudicca), queen of the Iceni of eastern England, led a revolt against the Romans. Her forces captured Colchester, London, and St. Albans, and killed many of the inhabitants. Eventually, the Romans defeated Boadicea, and she took poison rather than submit to them.

During the Roman occupation of Britain, native British (Celtic) kings who submitted to Roman authority were allowed to rule as local representatives of the Roman Emperor. Many kings became Roman citizens. When the Romans introduced Christianity in the 300's, many British kings became Christians.

After the Romans left Britain in the 400's, British kings established themselves in the former Roman provinces. According to legend, a Welsh king named Vortigern became a tyrant ruling most of Romanized Britain.

Tribes of Germanic peoples, including Angles, Saxons, and Jutes, had been raiding Roman Britain since the mid-300's. The Scots and the Picts from the north also often raided the Roman provinces. According to tradition, Vortigern sought aid against further raids and protection for his kingdom by hiring an Anglo-Saxon or Jutish force. It was led by two joint kings, Hengest and Horsa. Hengest married Vortigern's daughter but later quarrelled with Vortigern. Horsa was killed, but Hengest settled in Britain and formed a kingdom in Kent. He was succeeded by Aesc in 488. Other foreign raiders also settled in Britain, and the Anglo-Saxon raids developed into an invasion. The Anglo-Saxons set up their own

kingdoms and gradually overwhelmed the British (Celtic) inhabitants. As a result, Britain's native Celtic population was confined to Scotland, Wales, and southwestern England. Some Celts took refuge overseas in Brittany.

### **The Anglo-Saxon and Danish kings**

**The Anglo-Saxon settlement.** The Anglo-Saxon invaders of the A.D. 400's carved large and small kingdoms out of the area they conquered. Three great kingdoms finally developed: Northumbria in northeastern England, Mercia in the Midlands, and Wessex in the south.

According to tradition, an important early king of Wessex was Cerdic. Cerdic settled in Wessex in the 490's and founded a royal *house* (family). Many later West Saxon kings, including Alfred the Great, claimed to belong to the House of Cerdic.

Some Anglo-Saxon kings were acknowledged as overlords by other kings in England and became known as *bretwaldas* (rulers of Britain). Aelle, king of Sussex in the early 500's, was the first *bretwalda*. Ceawlin, king of Wessex, was the second.

The early Anglo-Saxon kings were pagans. They worshipped many gods and claimed descent from one of the gods, Woden. Ethelbert, who was king of Kent when St. Augustine arrived there in 597, was the first Anglo-Saxon king in England to be converted to Christianity.

**Northumbria.** By the late 500's, the Angles of Northumbria had two kingdoms, Bernicia and Deira. In 593, however, Ethelfrith, king of Bernicia, became ruler of the whole of Northumbria. He ruled it until 616. He subdued the Scottish lowlands and separated the ancient British (Celtic) kingdoms of southern Scotland from those of North Wales. In 616, Edwin, a descendant of a Deiran king, overthrew Ethelfrith. He ruled Northumbria until 632. According to some traditions, he founded Edinburgh. One of Edwin's successors, Oswiu, was overlord of all the English kingdoms from 654 to 657. Later, Northumbrian influence declined in England, but Northumbria remained powerful throughout the 700's.

**Mercia.** During the 600's and 700's, the kingdom of Mercia rose to prominence in the Midlands. Mercia's first major king, Penda, was a pagan noble who helped to overthrow Edwin of Northumbria in 632 and became king of Mercia as a result. He defeated Oswald, Edwin's eventual successor, in 641. From then until his defeat by Oswiu in 654, Penda was the most important king in England. Penda's son, Wulfhere, reigned from 657 to 674 and won recognition as overlord of southern England. Wulfhere's successors lost the authority he had won, but his cousin's son, Ethelbald, regained it. Ethelbald, who reigned from 716 to 757, became overlord of all the English kingdoms between the River Humber and the Channel. Ethelbald was murdered in 757 and was eventually succeeded by Offa.

Offa, the greatest of the Mercian kings, reigned from 757 to 796. He was a strong and ruthless king who overawed the southern kingdoms and treated them as provinces. He developed commerce and carried on international diplomatic relations with King Charlemagne of France and with the pope. Offa built a great *dyke* (defensive rampart) marking the boundary between England and Wales.

**Wessex.** After the death of Offa, the power of the Mercian kings declined. The kingdoms of Kent, Wessex, and East Anglia rebelled against Mercia. Egbert became king of Wessex in 802. In 825, he defeated a Mercian army at Ellendun, near Swindon, and ended Mercia's domination of southern England.

Egbert was the last of the *bretwaldas*. He reigned until 839 and founded a dynasty that ruled in England for more than 150 years. He conquered the *Britons* (Celts) of southwest England. He *annexed* (joined) the kingdom of Kent to Wessex and forced the Northumbrians to submit to his overlordship. But by the end of his reign, his power was much reduced. Egbert's son, Ethelwulf, who succeeded him in 839, reigned until 858. He was an able ruler who built up the strength of Wessex.

During the reigns of Egbert and Ethelwulf, southern England suffered severely from its first Viking raids. The Vikings, who were seafaring warriors from Denmark, Norway, and Sweden, had begun attacking Britain in the late 700's. Most of their early attacks fell upon Scotland and Ireland. But in the 830's, Danish Vikings attacked Kent. In 851, Ethelwulf defeated a Danish army at Aclea, somewhere in southeast England.

Ethelwulf left four surviving sons who each succeeded in turn to the kingdom of Wessex. The most forceful of them were Ethelred I and Alfred. Ethelred I ruled from about 865 to 871. During his reign, the Danes invaded Wessex. They wanted to settle in England and already held large parts of it. Ethelred and his brother Alfred fought several battles against the Danes, and they beat a Danish army at Ashdown in 871. Nevertheless, the Danes were still encamped in Wessex when Ethelred died the same year.

Alfred, who succeeded Ethelred as king of Wessex, was the most famous king in early English history. People often call him *Alfred the Great*. He was a politician and general; a man of culture, religion, and learning; and a fine writer and translator.

In 878, Alfred decisively defeated a Danish army at Ed-

ington and forced it to leave Wessex. After capturing London from Danish occupation in 886, Alfred was recognized as overlord by all the English peoples not under Danish control. He divided the country with the Danish settlers. The Danish part of England—the eastern and northern regions—became known as the *Danelaw*. The non-Danish (English) part became united under Alfred's authority.

Alfred lived in uneasy peace with the Danelaw for a time. But in 892, he began a long, hard war against fresh Danish invaders backed by the settlers of the Danelaw. Alfred won the war in 896.

Alfred made many reforms and passed many laws. He reorganized his armies and started to build what some experts have seen as the first English navy. He also arranged a successful system of strongholds to defend Wessex. Later writers made up stories about Alfred. The most famous one concerns the period just before the Battle of Edington in 878. Alfred and his followers had just been badly defeated by the Danes and had taken refuge in the Isle of Athelney in the Somerset marshes.

## The Anglo-Saxon and Danish kings

### Anglo-Saxon Kings

EGBERT  
d. 839

ETHELWULF  
d. 858

ALFRED  
The Great  
849-899

ETHELRED I  
d. 871

ETHELBERT  
d. 865?

ETHELBALD  
d. 860

EDWARD  
The Elder  
870?-924

EDRED  
d. 955

EDMUND  
921-946

ATHELSTAN  
893-939

EDGAR  
The Peaceful  
944-975

EDWIG  
941?-959

Earl Godwin  
d. 1053

1, Emma  
of Normandy  
d. 1052

ETHELRED II  
The Redeless  
968?-1016

EDWARD  
The Martyr  
962-978?

HAROLD II  
1027?-1066

Edith  
d. 1075

EDWARD  
The Confessor  
1002?-1066

EDMUND  
Ironside  
981?-1016

### Danish Kings

SWEYN  
Forkbeard  
d. 1014

Elfgifu  
of Northampton

CANUTE  
995-1035

(2) Emma  
of Normandy  
d. 1052

HAROLD I  
Harefoot  
1016?-1040

HARDECANUTE  
d. 1042



Offa (Reigned 757-796)



Alfred (Reigned 871-899)



Edgar (Reigned 959-975)



Canute (Reigned 1016-1035)

Courtesy of British Museum, London



One day, Alfred was sheltering in a peasant's cottage. Without knowing who he was, the woman of the house asked Alfred to watch over some cakes she was cooking by the fire. Alfred, lost in thought, forgot about the cakes, and they were burnt. The woman was angry with him, but Alfred simply paid her for the ruined cakes and left.

Alfred died in 899. He was succeeded in Wessex by his eldest son, Edward the Elder, who reigned until 924. Alfred had laid the foundation for a united English monarchy, and Edward carried on this work. Edward was an able warrior and diplomat. His main achievement was the conquest of all the Danish settlements south of the Humber. Tribes in Mercia and Welsh princes also submitted to him.

Edward was succeeded by his eldest son, Athelstan, who reigned from 924 to 939. Athelstan had been raised in Mercia and received much support from both the Mercians and the people of Wessex. He extended his overlordship to include the Danish kingdoms of northern England and Celtic kingdoms in Scotland, Wales, and Cornwall. He also played an important role in European affairs.

Athelstan was succeeded in turn by his two brothers, Edmund and Edred. Edmund conquered the Celtic kingdom of Strathclyde and took an active part in European affairs. Edred died childless in 955, and Edmund's sons succeeded him. Edwig, the eldest son, reigned from 955 to 959 but died before he reached adulthood.

Edwig's brother Edgar reigned from 959 to 975. He was one of the country's greatest monarchs and became known as *the Peaceful*. Before becoming sole king of England, he had already been king of the Mercians and Northumbrians for two years. Edgar was a great law-giver and effectively reformed England's coinage. His coronation at Bath in 973 was a splendid affair at which even Welsh princes did him homage. Edgar founded many monasteries and was guided by a group of clerics that included Saint Dunstan, Archbishop of Canterbury.

Edgar's successor, Edward, reigned for less than three years before he was murdered in 978. Edward's murder angered the country. He became known as *Edward the Martyr* and was made a saint.

Ethelred II succeeded his brother Edward. Ethelred was a weak king who was always mistrustful and lacking in self-confidence. In history, he earned the nickname *Redeless*. People often translate this as *unready* (unprepared). It really means *lacking in counsel* or *unadvised*. During Ethelred's reign, Danish raiders again attacked England. Ethelred levied taxes on his people to pay the Danes to go away or keep the peace. This tribute of money was called *Danegeld*. Although this policy preserved Ethelred's kingdom, it encouraged the Danes to return for further payments.

In 1002, Ethelred married Emma, daughter of Duke Richard of Normandy. This marriage later helped to provide Duke William of Normandy with his claim to the English throne.

Danish raids continued. Then, in 1013, Sweyn Fork-beard, king of Denmark, decided to make himself king of England. He overcame Ethelred in a hard-fought campaign, and Ethelred fled to Normandy.

**Danish kings in England.** The English accepted Sweyn as king late in 1013, but he died after only a few

weeks. Ethelred returned from Normandy and resumed his reign early in 1014. At his death in 1016, he was succeeded by his son Edmund Ironside. But Sweyn's son, Cnut (more commonly known as *Canute*), sought to reclaim his father's kingdom in England. In 1016, Canute and Edmund signed a treaty dividing England between them. Edmund died suddenly shortly afterwards, leaving Canute as sole king.

Canute ruled England until 1035. He also ruled Denmark and, for a time, Norway. In England, Canute restored order and brought good government to the country. Canute proved an effective king. Ethelred II's weakness had caused people to lose respect for the monarchy. Canute brought the country back under firm, though sometimes ruthless, rule. He improved England's defence and helped its traders to win new markets. He also supported the Church.

Canute married Ethelred's widow, Emma. Their son Hardecanute (also spelled *Harthacnut*) was in Denmark when his father died in 1035. Because of the political situation in Denmark, Hardecanute could not return to England immediately. In 1036, the *Witan* (king's supreme council) elected as king an illegitimate son of Canute, Harold, known as *Harefoot*. Harold's mother, Elgifu of Northampton, and an English earl, Godwin, both helped him to win the kingship.

It seems that Harold I inherited his father's ruthlessness but not his ability. After Harold died in 1040, Hardecanute finally succeeded as king, but died two years later. The throne then passed to Edward, the only surviving son of Ethelred II and Emma.

Edward, known as *the Confessor* because of his great piety, had lived in Normandy for 25 years. He was a stranger in England. During his reign, there were many struggles for power. The king could never be ignored, but from time to time the great Earl Godwin and his sons dominated affairs. Edward's closest heirs by blood were his nephew, Edward the Atheling, and then the Atheling's young son, Edgar the Atheling. Edward the Atheling died in 1057. In 1051, King Edward seems to have promised some right in the succession to Duke William of Normandy.

**The Norman Conquest.** The English earls opposed the succession of William. After Edward's death, Edgar the Atheling was still only a child. So Harold, Godwin's son, was chosen by the *Witan* to be king and was crowned as Harold II in January 1066. In the autumn, he had to face two invasions. In the first, Harold's brother Tostig accompanied a Viking invasion led by King Harald Hardrada of Norway. In the second, Duke William came with an army from Normandy to claim the throne. On September 25, King Harold defeated and killed Tostig and Harald Hardrada at the Battle of Stamford Bridge. But on October 14, in the fateful Battle of Hastings, William defeated and killed Harold and seized the English throne.

### **Early rulers of Scotland and Wales**

The Celtic-speaking Britons who were gradually forced westward and northward by Anglo-Saxon invaders in the A.D. 400's became the Welsh of later times. Tradition says that Cunedda, ruler of the Britons in the territory along the Firth of Forth, came to North Wales around 400 and drove out Irish invaders. The kingdom

of Gwynedd is said to be named after Cunedda. He started a great dynasty whose members gave names to kingdoms in Wales. In the early 600's, the Anglian kings of Northumbria subdued the British kingdoms in southern Scotland and separated the Britons of Scotland from those of Wales.

**Scotland.** Little is known of the early rulers of Scotland. The Britons in the south formed only one of four separate groups. The others were the *Picts*, who occupied the north and east; the *Scots*, a Celtic people from Ireland who occupied Argyll and the Western Isles; and the *Angles*, a Germanic people who competed with the Britons for control of the south.

Until the 800's, the Angles, Britons, Picts, and Scots often raided each other for silver and cattle. After about 740, Pictish kings often dominated the country. But in 843, Kenneth MacAlpine, a king of the Scots, united his realm with that of the Picts.

Violent rivalries marked the early history of the Scottish kings, but their authority expanded. Kenneth II, who reigned from 971 to 995, received from Edgar, king of Wessex, all the English lands between the Rivers Tweed and Forth. This was the region called *Lothian*, the northern part of Northumbria.

In the early 1000's, Malcolm II emerged as the first ruler of Scotland roughly as we know it today. Malcolm succeeded as king in 1005. By about 1018, he had won control of Lothian and had his lordship recognized in Strathclyde. But Orkney, Shetland, and the Western Isles, all of which had long since been conquered by the Vikings for Norway, lay outside his kingdom.

In about 1034, Malcolm's grandson, Duncan I, succeeded to the throne. Duncan was a weak king. In 1040, one of Duncan's generals, Macbeth, defeated and killed him in battle. Macbeth seized the throne and proved a strong ruler. In 1054, Duncan's son, Malcolm, and Siward, Earl of Northumbria, defeated Macbeth at Dunsinane. But Macbeth clung to the kingship until 1057. His stepson Lulach succeeded him but reigned for only a short time. Eventually, Malcolm took back his father's throne.

Malcolm III, known as *Malcolm Canmore* (Big Head), became king in 1058. He was the strongest of Scotland's early rulers and founded a dynasty that lasted nearly 250 years. Under Malcolm, Scotland accepted English influences. Malcolm's queen, Margaret, an English princess, helped to further religious life in Scotland, and after her death, she was canonized a saint.

**Wales.** After the Romans left Britain, many independent kingdoms developed in Wales. Three major kingdoms eventually emerged: Gwynedd in the north; Powys in mid-Wales; and Deheubarth, which included Dyfed and Ceredigion, in the south.

In the mid-500's, one of the strongest rulers in Wales was Maelgwn Gwynedd, prince of Gwynedd, a descendant of Cunedda. Tradition says that Maelgwn was a ruthless, wicked ruler. But he was also a man of culture, and many poets and musicians attended his court at Deganwy. In 633, Cadwallon, a descendant of Maelgwn Gwynedd, helped Penda of Mercia to overthrow Edwin, king of Northumbria. In 634, Cadwallon died in battle against Oswald, Edwin's eventual successor. A later ruler of Gwynedd, Cadafael ap Cyndedw, marched with Penda against Oswiu of Northumbria in 654. The

joint force was defeated at the Battle of River Winwaed, near Leeds.

In the 700's, the building of Offa's Dyke defined the border between Wales and England. Separate independent kingdoms continued in Wales. The strongest kingdom was still Gwynedd.

In 825, Merfyn Frych became ruler of Gwynedd. He was a firm ruler, who secured his hold over Wales by marrying the daughter of the king of Powys. In 843, he was succeeded by his son Rhodri Mawr (Rhodri the Great). Rhodri was the first Welshman to unite a large part of Wales.

After Rhodri's death in 878, the Welsh kingdoms gradually came under the overlordship of the Anglo-Saxon kings of England. In 918, several Welsh ruling princes paid homage to Edward the Elder. One of these princes was Hywel Dda (Howel the Good), a grandson of Rhodri Mawr and the ruler of Deheubarth. Hywel sought close links with the court of Wessex. In 942, following an unsuccessful rebellion by other Welsh princes against the English, Hywel became master of a united Wales. Hywel Dda is most famous for the *codification* (writing down) of Welsh laws that took place during his reign. He died in about 950.

Wales again fell into disunity. In 986, after a period of war between the Welsh princes, Hywel Dda's grandson, Maredudd ab Owain, ruler of Deheubarth, conquered Gwynedd and temporarily united Wales once more.

The greatest Welsh ruler to link together the kingdoms of Wales was Gruffydd ap Llewelyn ap Seisyll. He was a descendant of Hywel Dda and Rhodri Mawr. Gruffydd succeeded to the throne of Gwynedd in 1039. In the same year, he inflicted a crushing defeat on the Mercians at Rhyd-y-Groes, near Welshpool, in Powys. This was the first of many successful Welsh raids on the English borderlands in which Gruffydd made territorial gains for his country. He was particularly active against the growing Norman influence in what is now Hereford and Worcester. He also made alliances with the enemies of King Edward the Confessor. Within Wales itself, Gruffydd fought a long campaign against rival kings to win overall control. By 1055, he had become master of Deheubarth and had expanded his rule to the lesser kingdoms of Morgannwg (Glamorgan) and Gwent. In 1063, Earl Harold Godwinson (later Harold II) and his brother Tostig made a joint attack on Gwynedd. At the same time, Deheubarth rebelled against Gruffydd's rule. Gruffydd fled and was murdered by his own men.

### The Normans

Two months after the Battle of Hastings, William I was crowned king in Westminster Abbey. The service was held on Christmas Day 1066, with all the traditional ceremonies associated with the coronation of English kings since the time of Edgar. William had gained his throne by conquest, and people called him the *Conqueror*. But by accepting the English form of coronation, William emphasized his claim to be the legitimate successor to Edward the Confessor.

William I was a strong king and a man of immense determination. He was stern to people who opposed his will, but kindly disposed to those who did not.

William dispossessed nearly all the Anglo-Saxon nobles of their lands, and put Normans in their places.



These men discouraged rebellion by building strong castles throughout the country, especially in Wales.

William and his Norman successors imposed heavy taxes. In 1086, William ordered a land survey for tax purposes. The survey's results are contained in a document that became known as the *Domesday Book*. William's policies cost the English many of their liberties, but brought them peace and order.

William was succeeded in 1087 by his second son, William II. William II was a short, stout man with a red face, from which came his nickname of *Rufus*. He was a strong king and ruled his subjects firmly. In 1095, he crushed with great severity a revolt by some of his barons. He acquired control of Normandy from his older brother, Robert, by lending him money to go on a crusade. To raise funds for the war, William taxed his English subjects.

William died in 1100 while hunting in southern England. He was killed by an arrow shot by one of his lords, Walter Tirel. Historians are not sure whether Tirel deliberately fired the arrow at William. But some people believe that William's younger brother, Henry, plotted his death. At any rate, Henry seized the treasury at Winchester and became the next king.

Henry I was an ambitious and unscrupulous politician. Early in his reign, he set out to convince his subjects that he would not be as ruthless as his brother had been. He proved himself an effective king. He maintained good order and kept his barons in check.

In 1101, Duke Robert of Normandy invaded England to claim the throne as the eldest of William the Conqueror's sons. Henry made terms with him, and Robert renounced his claim in return for a pension. Five years later, Henry invaded Normandy, and captured Robert at the Battle of Tinchebrai.

Henry I had two legitimate children, William and Matilda (also called Maud). William was drowned in 1120 while crossing from Normandy to England in a vessel called the *White Ship*. Matilda was married at the age of 11 to the Holy Roman Emperor Henry V. Henry V died in 1125. In 1127, the Empress Matilda, for whom Henry I was struggling to win recognition as his heir, married Geoffrey, Count of Anjou. Two other claimants to the throne were Henry's nephews, Theobald and Stephen, Counts of Blois. Their mother, Adela, was William the Conqueror's daughter.

Henry died in 1135. When Stephen heard of his uncle's death, he crossed to England from France and was

crowned king. Theobald accepted his younger brother's success, but Matilda did not give up her claim. In 1141, her supporters defeated Stephen in battle and took him prisoner. A council of noblemen at Winchester deposed Stephen and elected Matilda as ruler of England. But Matilda quickly made herself unpopular. Before the end of the year, the English barons released Stephen, and he was again crowned king.

Stephen, who reigned from 1135 to 1154, was an able, brave, and chivalrous king, but he depended heavily on the support of his barons. Matilda left England for good in 1148. Geoffrey of Anjou seized Normandy and ruled it in the name of his and Matilda's son, Henry of Anjou. A year before his death, Stephen promised that Henry should also succeed to the throne of England.

**The early Plantagenets**

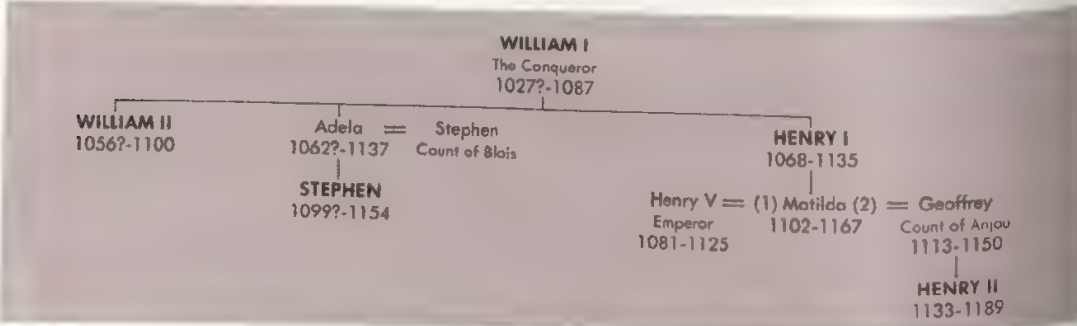
**The Angevins.** The Counts of Anjou, who were known as *Angevins*, had built up a strong principality in France by conquests and by marriages. Geoffrey, Count of Anjou and the husband of Matilda, extended his possessions by conquering Normandy and by inheriting Maine. His descendants bore the name of *Plantagenet*, which came from the *planta genesta* (broom plant) depicted on his coat of arms.

When Geoffrey and Matilda's son Henry succeeded as King Henry II of England in 1154, he already ruled over much of western France. He had inherited Anjou, Maine, Normandy, and Touraine from his father. In 1152, he gained control of Brittany and Aquitaine by marrying Eleanor of Aquitaine, the divorced wife of the French king, Louis VII. By his succession to the throne of England, Henry thus became more powerful than his overlord, the king of France. In 1172, Henry extended his realm even further by becoming overlord of Ireland. This vast empire needed all Henry's decisiveness and energy to preserve it.

The Norman kings had created powerful barons in England. These barons became unruly during Stephen's reign, but Henry disciplined them and reformed the law and government of England. He increased taxes and set up a personal military bodyguard so that he did not have to depend on the barons for military power.

In 1170, four of Henry's knights murdered Thomas à Becket, the Archbishop of Canterbury and Henry's former friend. The murder occurred while Henry was seeking to reduce the power of the church courts, which had become increasingly independent of the royal au-

**The Norman kings**



thority. However, after Becket's death, Henry abandoned his plans and did penance for the crime.

Much of Henry's life was spent in preserving his French possessions. He gave the government of some of these lands to three of his sons—Henry, Richard, and Geoffrey. John, the youngest son, who originally had no territories to rule, received the nickname of *Lackland*. All four sons rebelled against their father at one time or another.

Henry died in 1189, leaving his throne to his second son, who became Richard I. Richard was known as *Coeur de Lion* (the Lion Heart) because of his courage. He was an ardent crusader, and spent most of his reign away from England. In 1193, while returning from the Holy Land, Richard was imprisoned by Duke Leopold of Austria and the Holy Roman Emperor Henry VI. England had to raise a huge sum of money to pay his ransom. In general, Richard's generosity and extravagant exploits drained England's financial resources and weakened the monarchy.

The monarchy grew weaker still during the reign of Richard's youngest brother, John. Before he died in 1199, Richard had made John his heir. But Philip II of France, the overlord of the Counts of Anjou, supported the claim of Arthur, the child of Henry II's third son, Geoffrey. War broke out between Philip and John in 1202, and John captured the 15-year-old Arthur at Mirabeau. Arthur died mysteriously in prison, and many people accused John of his murder.

John was not so much a bad king as an unsuccessful one. Constant defeats in war led to the loss of Normandy and other parts of the Angevin Empire. The wars also placed a heavy financial burden on England, and many of John's barons grew discontented. In 1215, they forced him to approve a document called *Magna Carta* (the Great Charter), which defined the powers of the king and the rights of the barons and freemen.

John also experienced difficulties in religious matters. His quarrels with the Church and with the pope's ambassador, Stephen Langton, caused the pope to place England under an *interdict* (religious ban). Under it, all the churches were closed.

The struggle between king and barons continued into the reign of John's son, Henry III. Henry was a child of 9 when he came to the throne in 1216. When he grew to manhood, he, too, failed in his policies. He demanded and spent too much money and tried to run the government through his family and friends, ignoring other great leaders of the realm. High inflation in England at this time added to Henry's many financial problems.

Abroad, Henry failed to win back the French territories lost by his father. At home, great constitutional changes were taking place. The idea was growing that there should be an accepted system of laws and regular methods of political cooperation between the king and his barons. The King's Great Council was gradually developing into the institution that came to be called *Parliament*.

Nevertheless, in 1263, many of the barons, led by Simon de Montfort, took up arms against Henry in an effort to curb Henry's power. In 1265, de Montfort was defeated by Henry's son, Edward. Henry died in 1272. He was succeeded by Edward.

Edward I was one of the greatest of the Plantagenet

kings. On the whole, Edward kept peace with the French, but imposed his will on the Scots and the Welsh. He is famous chiefly as a lawgiver. Under his rule, Parliament developed as his instrument. But because of Edward's need for money and soldiers, he was obliged to agree to some of the demands of his barons.

### Rulers of Scotland, 1093-1371

After Malcolm III died in 1093, his brother Donald Bane seized the throne. In 1094, Malcolm's son, Duncan II, drove out Donald Bane but was killed soon afterwards. Donald Bane again assumed the kingship, but, in 1097, Edgar, another son of Malcolm, defeated and captured him in battle. Edgar reigned until 1107. He accepted William II of England as his overlord.

Peaceful and friendly relations continued during the reign of Edgar's brothers, Alexander I and David I. David, who reigned from 1124 to 1153, built up the independence of the Scottish church and state. He firmly established Norman feudal tenure in Scotland. David also made territorial gains for Scotland in Northumbria and Cumbria, in England.

But David's successors, his grandsons, lost much of what he had won. Malcolm IV, who was 11 years old when he became king in 1153, was forced by Henry II to return Scotland's English territories. Malcolm's brother, William, who succeeded him in 1165, tried to regain the territories but was captured and forced to acknowledge Henry as his overlord. William was known as *the Lion* because of the emblem on his shield. His reign of 49 years—from 1165 to 1214—was the longest in Scottish history. William's son, Alexander II, and grandson, Alexander III, had peaceful and fairly prosperous reigns. In 1217, Alexander II married Joan, sister of Henry III of England. Alexander III won the Western Isles from Norway in 1263.

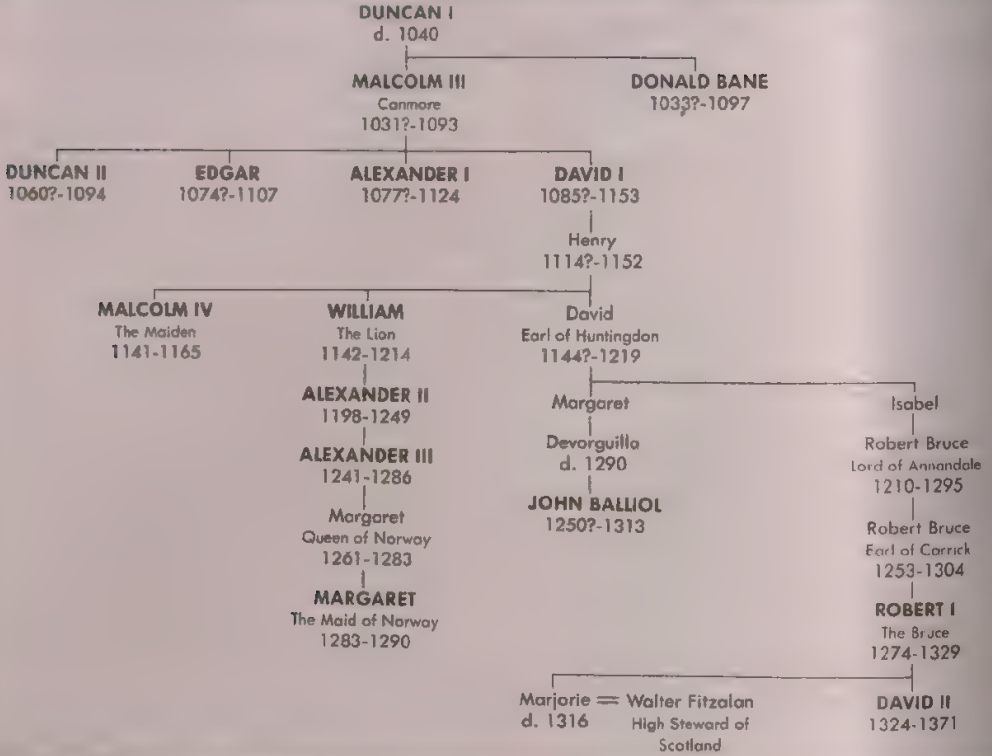
When Alexander III died in 1286, only his 3-year-old granddaughter, Margaret, survived to continue the royal line of Malcolm Canmore. Margaret was called *the Maid of Norway* because her mother, Alexander III's daughter, had been queen of Norway. Regents ruled on her behalf for four years. Margaret died in 1290, and her death plunged Scotland into a dynastic crisis. Thirteen people claimed the throne, including John Balliol and Robert Bruce, Lord of Annandale. Both men were great-great-grandsons of David I. The council in charge of Scotland's government asked Edward I of England to judge the case of each claimant. Edward chose John Balliol.

Edward used Balliol as a puppet to control Scotland and insulted Balliol by insisting on certain petty feudal rights. In time, Balliol and the Scots rebelled. Edward captured Balliol at the Battle of Dunbar. But he also had to put down a revolt led by Sir William Wallace, a Scottish knight. Edward regained control in 1304.

The Scots soon found a fresh leader—Robert Bruce, grandson of Balliol's chief rival for the throne. Bruce was gallant and genial, and a tireless fighter. He rallied his people against the English, and had himself crowned king as Robert I in 1306. Bruce recaptured castles in Scotland and raided the north of England. In 1314, Edward II, the son of Edward I, attacked Bruce. Bruce defeated him at the Battle of Bannockburn. By the Peace of Northampton (1328), the English recognized Scotland's independence. They agreed that Bruce's son, David,



**The Scottish succession to 1371**



should marry Johanna, sister of Edward III of England.

After the death of Robert Bruce in 1329, Edward III joined with Edward Balliol, son of John Balliol, in defeating David Bruce's guardians. But in the 1340's, David II drove the English out of Scotland and regained his throne. In 1346, he unwisely invaded England, and was defeated and captured. Edward released him 11 years later for a large ransom. David was a brave but foolish king, and was unpopular. He died childless in 1371.

**The last rulers of Wales**

Disunity followed the death of Gruffydd ap Llywelyn ap Seisyll in 1063. William I's Norman barons took advantage of this disunity to gain territory in Wales. They

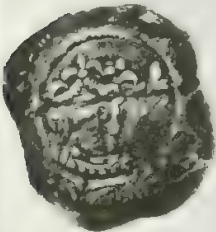
built strong castles in the Welsh *marches* (border districts). Important Norman families, such as those of Clare and Montgomery, ruled parts of Wales as lords. But native Welsh princes still held the ancient kingdoms of Deheubarth, Gwynedd, and Powys.

The Welsh princes resisted the foreign barons. In 1093, Rhys ap Tewdwr, who was ruler of Deheubarth, fell fighting the Normans in Brycheiniog, now part of the modern county of Powys. In 1094, Cadwgan ap Bleddyn, ruler of the old kingdom of Powys, rebelled against William Rufus and won some independence. He later acknowledged William and Henry I as his overlords. Cadwgan, who became a weak ruler in later years, was murdered by his nephew Madog in 1113.

The most effective ruler of the time was Gruffydd ap Cynan. Gruffydd was born in Ireland, where his parents were in exile. He went to Wales and helped Rhys ap Tewdwr overcome his rival princes. By 1081, Gruffydd was master of Gwynedd. After being imprisoned by the Normans for a time, Gruffydd sought to extend his territories. In 1087, he attacked and killed Baron Robert of Rhuddlan. In 1094, he joined the revolt of Cadwgan. He resisted the Normans with help from the King of Norway.

Gruffydd ruled the whole of North Wales as far east as the River Clwyd. Throughout his reign, he showed great statesmanship. In 1114, he recognized Henry I as his overlord. He died in 1137.

The two major Welsh rulers of the 1100's were Rhys



**Robert I** (Reigned 1306-1329)



Courtesy of British Museum, London  
**David II** (Reigned 1329-1371)

ap Gruffydd and Owain Gwynedd. Rhys ap Gruffydd, the grandson of Rhys ap Tewdwr, ruled Deheubarth. In 1137, at the age of 5, he succeeded his father. Rhys took advantage of the quarrel between Stephen and Matilda to ravage the area of Wales now covered by the county of Dyfed. But Henry II captured Rhys in 1163, releasing him shortly afterwards. Rhys rebelled against Henry in 1165, but later recognized him as his overlord.

Owain Gwynedd, an ally of Rhys, became ruler of Gwynedd on the death of his father, Gruffydd ap Cynan, in 1137. Owain proved himself a brilliant general and politician. In 1157, he skilfully avoided a confrontation with Henry II and acknowledged him as overlord. In 1165, Owain joined in Rhys's revolt against Henry and won territory as far east as the Dee estuary. Henry failed to bring the Welsh to battle, and Owain was allowed to hold his conquests in peace. He died in 1170.

The death of Owain Gwynedd left Rhys ap Gruffydd

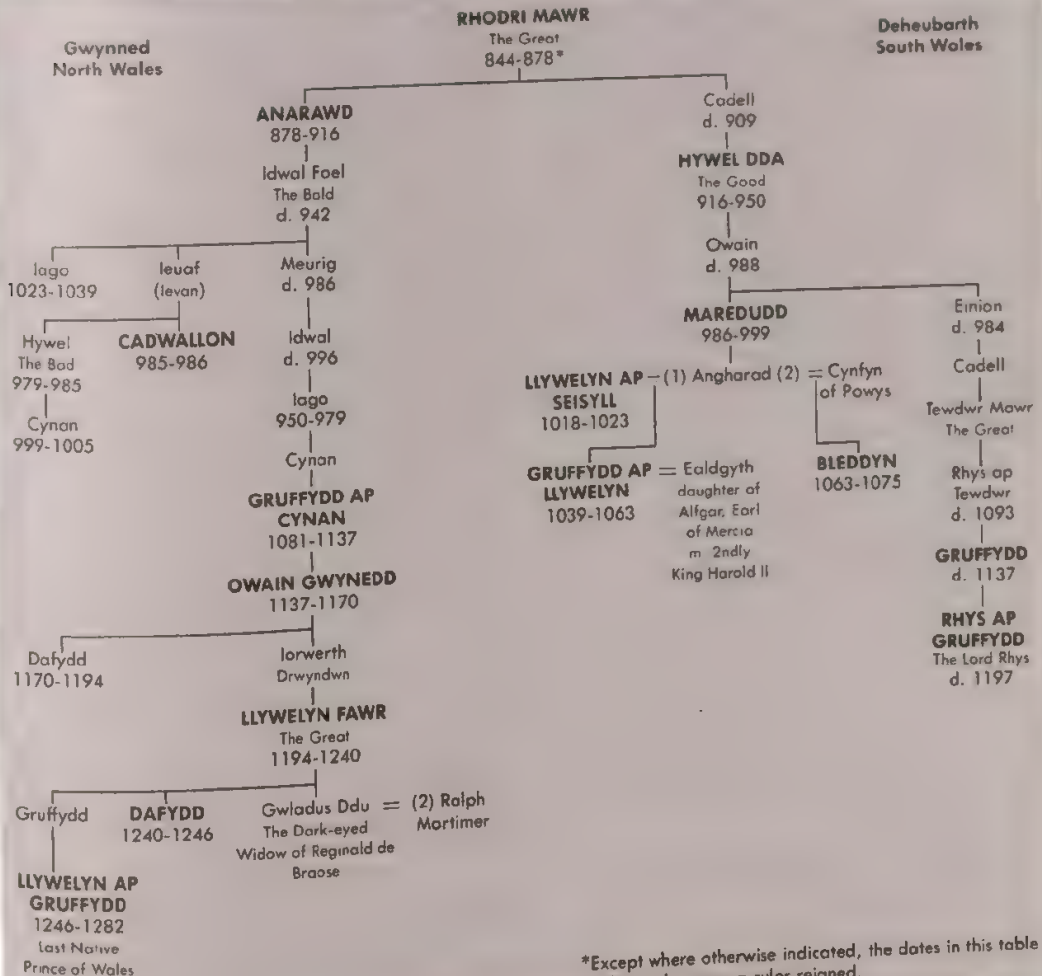
as Wales's sole ruler. Rhys was one of Henry's strongest supporters. He held most of Wales for the English king and became known as *Yr Arghwydd Rhys* (the Lord Rhys). But when Henry died, Rhys rebelled against Henry's successor, Richard I. Rhys died in 1197.

In Gwynedd, one of Owain's many sons, Dafydd, seized the kingdom in 1176. But Llywelyn, son of Dafydd's half-brother Iorwerth and grandson of Owain, drove Dafydd out of Gwynedd in 1194.

Llywelyn ap Iorwerth was the greatest of Wales's native princes. Like his grandfather, he proved a fine politician and a useful soldier. His exploits won him the name *Llywelyn Fawr* (Llywelyn the Great).

In 1199, Llywelyn captured Mold Castle and made extensive gains beyond Gwynedd. He recognized King John as his overlord and, in 1206, married John's illegitimate daughter, Joan. With John's help, Llywelyn extended his power to South Wales. But in 1210, John

## The rulers of Wales



\*Except where otherwise indicated, the dates in this table indicate the years a ruler reigned.



turned against him and organized partly successful attacks upon Gwynedd. In the long term, however, these attacks only succeeded in driving Llywelyn to join John's enemies, the Braose family. By 1215, Llywelyn ruled the whole of Wales outside Norman control. After John's death, Llywelyn paid homage to the young Henry III, and lived in peace with England for most of the rest of his reign.

Llywelyn ap Iorwerth died in 1240 and was succeeded by his son, Dafydd II. Dafydd died in 1246 and the throne passed to his nephew, Llywelyn ap Gruffydd ap Llywelyn Fawr (Llywelyn the Last).

Originally, Llywelyn shared the throne with his brother, Owain Goch (Owain the Red). In 1247, Llywelyn did homage to Henry III and gave him all the land Wales had won east of the River Conwy. In the dispute between Henry and his barons, Llywelyn saw a chance to regain full independence for Wales. He sided with Simon de Montfort, but the barons' cause collapsed after de Montfort's death in 1265. Two years later, Llywelyn was forced to sign a peace treaty that allowed him to hold Wales as a principality, not a kingdom, provided he did homage to the king of England. After Henry III's death in 1272, Llywelyn neglected to do homage to the new king, Edward I. He rose in rebellion against English rule in 1282 and was killed in a skirmish at Cilmeri, near Builth, now in the modern county of Powys.

Independent rule in Wales died with Llywelyn ap Gruffydd. Edward is said to have promised to give the Welsh people a prince "who spoke no word of English," and so he gave them his infant son, the future Edward II. Since then, reigning English monarchs have usually given their eldest sons the title *Prince of Wales*.

### **Rulers of Ireland**

The Celtic people who inhabited Ireland had established kingdoms there by the time of Christ. They called these kingdoms *tuatha*. An elected king (*rí tuaithe*) ruled over each *tuath*. Sometimes, one of these kings ruled his neighbours as an *over-king*. In turn, a group of over-kings formed a federation under the king of one of the five provinces into which Ireland was divided at that time.

Little is known of Ireland's rulers before the A.D. 400's. Irish myths tell of such rulers as Conchobhar, king of Ulster, and Medb (or Maeve), queen of Connacht. In the late 200's, Cormac Mac Airt is said to have built a palace at Tara, in Meath, and to have ruled there as High King (*Ard Rí*).

The first Irish ruler of recorded history was Niall Noigiallach (Niall of the Nine Hostages). He was High King of Tara at the beginning of the 400's. Niall and his descendants, the Ui Neill, conquered Meath and ruled over the northern half of Ireland for hundreds of years. In 427 or 428, Niall's eldest son, Laoghaire, succeeded to the High Kingship of Tara. During his reign, Saint Patrick came to Ireland.

The provincial kings of Ireland nominally recognized the High King as an overlord. But the High Kings never brought political unity to the whole of Ireland. The strong southern kingdoms of Munster and Leinster remained independent.

Viking raids upon Ireland began in the late 700's and continued until the 900's. The Vikings built up independ-

ent kingdoms based on the towns they developed at Cork, Dublin, Limerick, Waterford, and Wexford.

One of Ireland's greatest native rulers, Brian Boru, led the final resistance against the Vikings. Brian, king of Dal Cais, in Clare, overcame his neighbours to become the strongest king in the south. In 1002, he seized the High Kingship of Tara from Malachy II, one of the Ui Neill. Brian made enemies among the other provincial kings. One of these, Máel Morda, king of Leinster, allied himself with Sitric, the Viking king of Dublin. Brian marched against them in 1014 and defeated them at Clontarf. Brian's victory ended Viking domination in Ireland but cost him his life.

After the Battle of Clontarf, rival native Irish kings continued to struggle for supremacy. One of the most successful was Turlough O'Connor, king of Connacht in the early 1100's. He attacked and partitioned other provincial kingdoms and won power over the whole of Ireland. After Turlough's death in 1156, Murtach MacLoughlin, king of Ulster, made himself High King of Ireland. In 1166, Rory O'Connor, the son of Turlough, overthrew Murtach and became Ireland's last High King. Rory's rule was resented by Dermot MacMurrough, king of Leinster. Dermot, who had been the ally of Murtach MacLoughlin, now sought help against Rory O'Connor from Henry II of England. Henry allowed Dermot to enlist assistance from the Norman barons of South Wales. One of them, Richard de Clare, known as *Strongbow*, made an agreement with Dermot. He married Dermot's daughter, Eva MacMurrough, and became heir to the kingdom of Leinster.

The Normans defeated the forces of Rory O'Connor, and in 1171, on the sudden death of Dermot MacMurrough, Strongbow seized Leinster as king. Other Norman barons also seized territories in Ireland. Henry II hastily crossed to Ireland with a large army and asserted his authority over his barons. Strongbow and the other barons submitted to Henry and retained the lands they had won as grants from their king. Henry made himself Overlord of Ireland. Rory O'Connor's position as High King was confirmed by the Treaty of Windsor of 1175, but he had no power. He died in 1198 without a successor.

### **The later Plantagenets**

Edward I had maintained the power of the Plantagenets. He successfully levied taxes on both property and trade to help pay for his assertive policies. However, as soon as Edward II succeeded his father in 1307, chaos broke out. The barons had resented the firm rule and administrative reforms of Edward I and sought constitutional curbs on the power of his son. Edward II was greedy, violent, and influenced by unpopular favourites. Eventually, the barons, helped by Edward's wife Queen Isabella, forced him to abdicate in favour of his son Edward III. Edward II was imprisoned and murdered in 1327.

Edward III was popular, charming, and adventurous. Most of his reign was overshadowed by the beginning in 1337 of the Hundred Years' War against France. His armies won victories over the French at Crécy and Poitiers. But, once again, the enormous expense of wars strengthened the influence of the leading nobility, whom the king had to ask for funds. Among the nobles

were Edward's own sons, Edward the Black Prince, his heir, and John of Gaunt, Duke of Lancaster. During the last years of his reign, Edward lost control of the government, and the princes and the greater nobility struggled for power. The death of the Black Prince in 1376 left the young son of the prince, Richard, as the heir to the throne, and left power with John of Gaunt.

Richard II was only 10 years old when he succeeded as king in 1377. He inherited many difficulties. Tax grievances were acute, and in 1381, the peasants of Essex and Kent unsuccessfully rebelled under Wat Tyler. The barons demanded new constitutional reforms, and they expressed general discontent with the royal administration.

Richard unwisely tried to kill or outlaw his more dangerous opponents. He made many enemies, including Henry of Bolingbroke, a son of John of Gaunt. In 1399, Henry made himself king as Henry IV. Richard was captured and imprisoned. He died in prison in 1400. He was probably murdered.

### Lancaster and York

When Henry IV took the throne, the House of Lancaster replaced the House of Plantagenet as the ruling house of England. The house took its name from the title of Henry's father, John of Gaunt, who was Duke of Lancaster. But many people regarded Henry as a usurper, saying that the descendants of John of Gaunt's elder brother, Lionel, Duke of Clarence, had a better claim to the throne. Later, the House of York—descendants of John of Gaunt's younger brother, Edmund, Duke of York—also established a claim. But a member of the House of York married an heiress of the House of Clarence. The respective claims of the two houses became a joint one in the name of York.

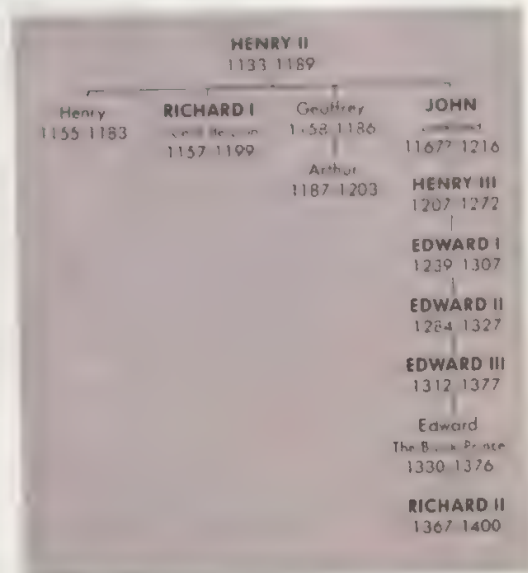
**The rule of Lancaster.** In the first part of the reign of Henry IV, there were constant rebellions against him. But Henry was clever, practical, affable, and unscrupulous. He died in 1413, after only 14 years on the throne. Yet Henry handed on the monarchy intact to his son, Henry V.

Henry V devoted his short reign to reviving the war against France, and to suppressing the Lollards, who were religious *heretics* (people who did not believe in the currently accepted teachings of the church). Henry defeated the French at Agincourt and Rouen. He then made a treaty with the French at Troyes in 1420. Under the terms of this treaty, he married Catherine, daughter of Charles VI of France. After Charles's death, Henry was to rule over France as well as England. But Charles's son, later Charles VII of France, refused to give up his right to the throne. Henry V died in 1422, still defending his French inheritance. He left his two thrones to his baby son, Henry VI.

**The Wars of the Roses.** As he grew up, Henry VI proved to be simple-minded, petulant, and ineffective. In 1445, he married Margaret of Anjou, a strong-minded French princess who completely dominated him. For many years they had no children, and the chief claimant to the succession was Richard, Duke of York, a descendant of Edward III.

Henry's conduct of the Hundred Years' War proved incompetent. At home, his ministers were corrupt, greedy, and wasteful. In 1450, the people of Kent re-

### The Plantagenet kings



belled against Henry under their leader, Jack Cade. In 1453, Henry made peace with France at last, thus ending the Hundred Years' War. England lost all her possessions in France except for the port of Calais. Henry's nobles felt bitter and humiliated. In addition, the end of the war left many soldiers unemployed and ready to fight for anyone who would pay them. These conditions resulted in the series of civil disturbances called the *Wars of the Roses*.

In 1453, Henry became insane. That same year, a son, Edward, was born to his queen, Margaret. The barons made Richard of York protector of the country during Henry's insanity. But early in 1455, Henry recovered his sanity. Some nobles supported Henry and Margaret. Others supported Richard.

Thus the wars began. By 1460, Henry VI had been forced to recognize York as his heir. But Margaret and other Lancastrians determined to continue the struggle. On Dec. 30, 1460, Lancastrian forces defeated and killed Richard of York in a battle at Wakefield, in West Yorkshire.

**The rule of York.** Richard of York's claim to the succession was taken up by his son, Edward, Earl of March. Edward received help from Richard Neville, Earl of Warwick, a powerful baron later known as *the King-maker*. In the spring of 1461, the Earl of March entered London and assumed the title of King Edward IV. A few days later, he decisively defeated the Lancastrians at the Battle of Towton, in North Yorkshire. Henry fled the country.

Edward IV was a clever king. But he was dissolute and overfond of money. Edward angered the Earl of Warwick, who had helped him to power and wanted him to marry a French princess. Instead, Edward married an Englishwoman, Elizabeth Woodville. Warwick deposed Edward in 1470 and made Henry VI king again. Edward fled the country. But in 1471, he returned with an army,





**Henry IV** (Reigned 1399-1413)



**Henry V** (Reigned 1413-1422)



**Henry VI** (Reigned 1422-1461; 1470-1471)

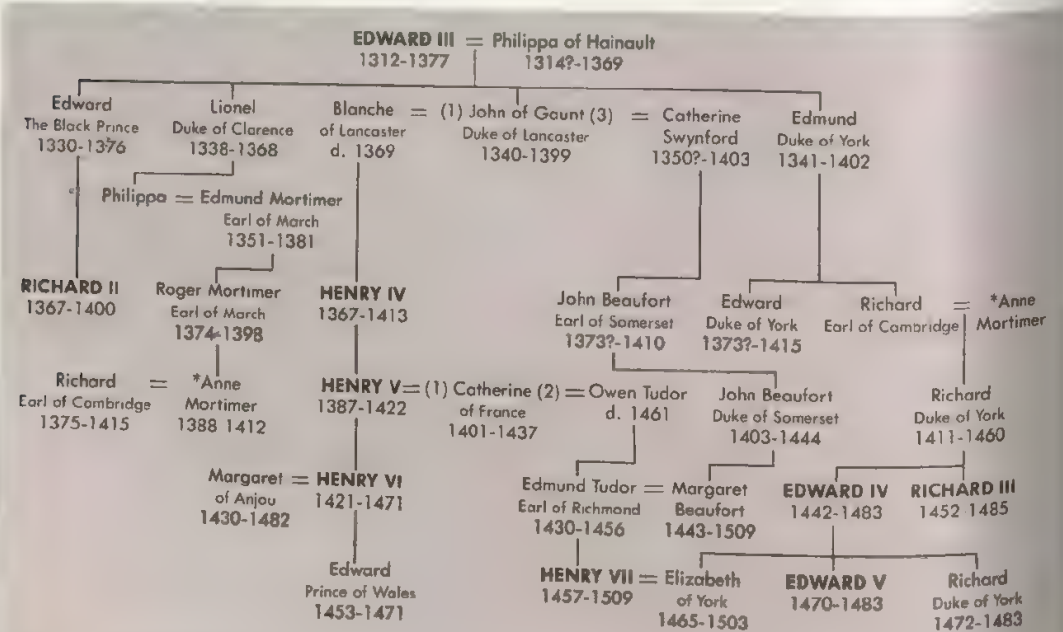
captured Henry VI, and defeated and killed Warwick at Barnet. Later, he defeated and captured Queen Margaret and killed her son in battle at Tewkesbury, Gloucestershire. Also in 1471, Edward IV had Henry VI put to death. He himself reigned until 1483. Despite much profiteering, Edward was a capable king. He reformed the country's coinage and encouraged international trade. He was succeeded by his son, Edward.

Edward V was a boy of only 13 when he inherited the throne. The actual power was in the hands of Edward IV's younger brother, Richard, Duke of Gloucester, who was appointed Lord Protector. Richard never allowed

Edward to reign. He imprisoned Edward V and his younger brother in the Tower of London, and arrested and executed Queen Elizabeth Woodville's friends. Parliament was told that Edward IV's marriage to Elizabeth was not valid, and that as a result Edward V and his brother were illegitimate. Parliament recognized Richard as king in 1483.

Richard III is one of the most controversial figures in British history. Historians do not agree about his character. On the one hand, Richard was brave, generous, and intelligent. He was an able administrator and soldier. But on the other hand, some historians have accused Rich-

### The Houses of Lancaster and York



\*Marriage of the descendants of Clarence and York

ard of playing a large part in the killing of Henry VI and of his own brother, the Duke of Clarence, who was disloyal to Edward IV. Many believe that he had Edward V and his brother murdered.

Richard's dishonest seizure of the throne aroused opposition. It was led by a new Lancastrian claimant to the throne, Henry Tudor, Earl of Richmond, who was in exile. Henry's mother was descended from John of Gaunt. His father, Edmund Tudor, was the son of Owen Tudor, a Welsh nobleman, who had married Henry V's widow, Catherine of France. Henry of Richmond landed in Wales with an army. He defeated and killed Richard at the Battle of Bosworth Field, in Leicestershire, and became king as Henry VII in 1485.

### The Tudors

By 1485, the English had become weary of civil conflict and of frequent changes of rule. The Wars of the Roses had destroyed many prominent noble families. The climate was right for the re-establishment of a strong monarchy and a stable government.

Although his claim was based on his Lancastrian ancestry, Henry VII brought a new royal house to the throne of England, that of the Tudors. Henry's claim was, in fact, questionable. Many doubted whether his mother, Margaret Beaufort, was a legitimate descendant of John of Gaunt. But even if Henry did not rule by right of succession, his victory at Bosworth made him king in reality. He proved to be a strong king and reigned until 1509.

After becoming king in 1485, Henry tried to settle the conflict between Lancaster and York by marrying Edward IV's daughter, Elizabeth of York. But there were people with better claims to the throne than Henry's, and he spent his early years as king suppressing their plots against him.

Henry strengthened his power by alliances. He married his elder son, Arthur, to Catherine of Aragon, the daughter of the joint rulers of Spain. He hoped that this union would win Spain's support against France. In 1492, Henry began a war with France, but soon came to terms with the French king, Charles VIII, who paid him a large sum of money. Henry married his daughter Marga-

ret to James IV of Scotland. Henry also established peace in Ireland. At home, he amassed a fortune, which made him independent of his nobles. He gained his wealth by efficient management of crown lands and by levying heavier taxes.

Arthur died soon after his marriage, and Henry VII was succeeded in 1509 by his second son, Henry VIII, a boy of 18. During the early part of his reign, Henry enjoyed himself while Thomas Cardinal Wolsey was left with most of the hard work of government. Later, Thomas Cromwell supplanted Wolsey as Chief Minister, and from then on Henry took a greater part in running the country.

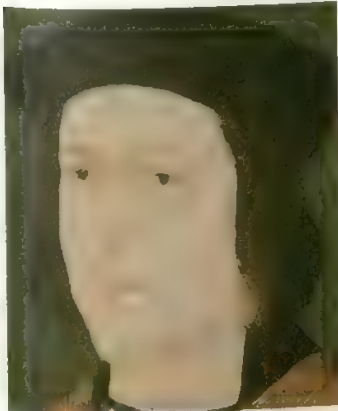
Henry married his brother Arthur's widow, Catherine of Aragon. But their only child was a daughter, Mary. Henry realized that a male heir to the throne was essential for England in those troubled times. He determined to divorce Catherine and marry again in the hopes of having a son to succeed him. Henry quarrelled with the Pope, with Wolsey, and with Sir Thomas More, the lord chancellor, over the divorce.

Henry VIII's second marriage, to Anne Boleyn, produced a second daughter, Elizabeth. It was not until his third marriage, to Jane Seymour, that his longed-for son, who was named Edward, was born. Henry's later marriages to Anne of Cleves, Catherine Howard, and Catherine Parr produced no children. Henry's divorce and subsequent marriages led to a break with the Roman Catholic Church, and Parliament passed an act recognizing Henry as head of the Church in England.

Henry was extravagant, greedy, and disloyal to those who served him. But he was also a patron of the arts, especially music, and he did a great deal to build up the English navy.

Edward VI was only 9 years old when he became king in 1547. Two powerful nobles—the Duke of Somerset and the Duke of Northumberland—fought each other for supremacy of the kingdom. Somerset was *protector* (ruler) of the kingdom for four years before Northumberland overthrew him.

Edward was an ardent Protestant, and before his death from tuberculosis in 1553, at the age of 16, he made an agreement with Northumberland to will the



National Portrait Gallery, London

**Edward IV** (Reigned 1461-1470; 1471-1483)



**Edward V** (Succeeded 1483)



National Portrait Gallery, London

**Richard III** (Reigned 1483-1485)



throne to his second cousin, Lady Jane Grey, a granddaughter of Henry VIII's sister, Mary. Jane was married to Northumberland's son, Lord Guildford Dudley. Northumberland hoped to retain his hold over the kingdom after Edward's death. Neither he nor Edward wanted control of the kingdom to pass to Edward's half-sister, Mary, who was an enthusiastic Roman Catholic. Although Lady Jane Grey was proclaimed queen, the plot misfired, and Jane, her husband, and Northumberland were executed.

Mary I became queen in 1553. She was England's first *queen regnant*—that is, she was the first woman to rule in her own right as queen. During her short reign, England lost Calais, its last possession in France. Mary's marriage to Philip II of Spain led to an unpopular alliance with Spain. Under Mary, England again became officially a Roman Catholic country, and Mary's government persecuted many Protestants. But Mary died before she could firmly re-establish Roman Catholicism in England. She was succeeded by her half-sister, Elizabeth, who was a Protestant.

Elizabeth I was a mature and educated woman of 25 when she came to the throne in 1558. She deliberately never married, because she feared that any choice of husband she made would lead to jealousy and conflict.

During the first part of her reign, Elizabeth consolidated her authority, made England again independent of the pope in religious matters, and strengthened the Church of England. Many Roman Catholics were put to death. During the second part of her reign, Elizabeth was engaged in a prolonged war against Spain. To serve her, she had fine captains such as Drake and Hawkins. She also had able statesmen such as the two Cecils—William, Lord Burghley, and his son Robert, later Earl of Salisbury.

Elizabeth's personality and charm appealed to the leaders of her country. But she had several quarrels with Parliament over her refusal to marry or to name a successor to the throne.

Elizabeth glorified the monarchy and provided her subjects with a national symbol of state. During her reign, England's overseas expansion began. Her merchants and mariners made voyages of discovery. Her

diplomats and ministers established England as a great and important power in Europe.

### **The Stuarts in Scotland**

David II of Scotland had no children. His nephew, Robert the Steward, succeeded him in 1371. Robert was the son of David's half-sister, Marjorie. Robert's ancestors were named Fitzalan, but they were known as Stuarts because they held the office of High Steward of Scotland. *Stewart*, later also *Stuart*, was the old Scots spelling of *Steward*. The Stuarts ruled Scotland for the next 300 years, and then became kings of England as well. The Stuart rule was a time of great unrest, partly because so many Stuarts inherited the throne in infancy.

Robert II was 55 when he became king. His eldest son was John, Earl of Carrick. John succeeded his father in 1390 and took the name of Robert III. Neither Robert II nor Robert III was an effective king, and many Scottish nobles questioned their right to the throne. A long struggle for power took place between the Stuarts and their subjects.

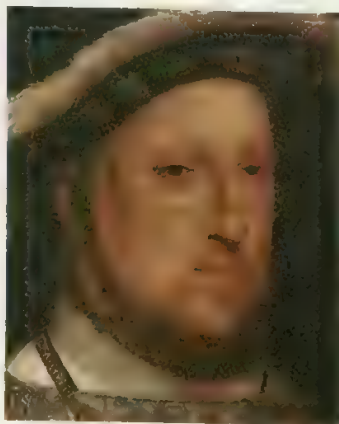
Robert III was king in name only. His younger brother, Robert, Duke of Albany, had been made guardian of the kingdom when Robert II became too old to rule, and Albany continued as guardian after Robert III came to the throne. Later, the power and title of guardian were transferred to Robert III's son, David, Duke of Rothesay. In 1402, Albany captured Rothesay, who died mysteriously soon afterwards. Meanwhile, an intermittent war was raging between Scotland and England. Robert III sent his surviving son, James, to France to protect him from Albany. But James was captured by the English and imprisoned in the Tower of London.

James, still a prisoner, became king in 1406, at the age of 12. Albany was appointed governor of the realm. Albany died in 1420, and his son, Murdoch, Duke of Albany, succeeded him as governor. During the government of the two Albanys, the Scottish nobles seized royal lands and revenues.

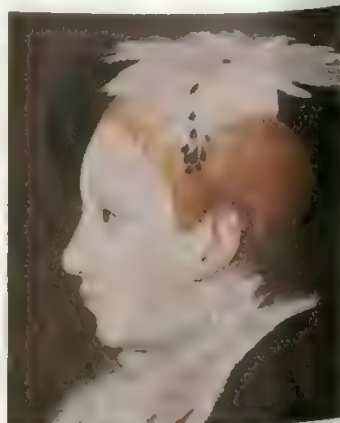
In 1424, James I was freed from his long imprisonment after payment of a large ransom. He proved an energetic king. He curbed the powerful nobles, reformed the Scottish legal system, and imposed taxes to restore



**Henry VII** (Reigned 1485-1509)



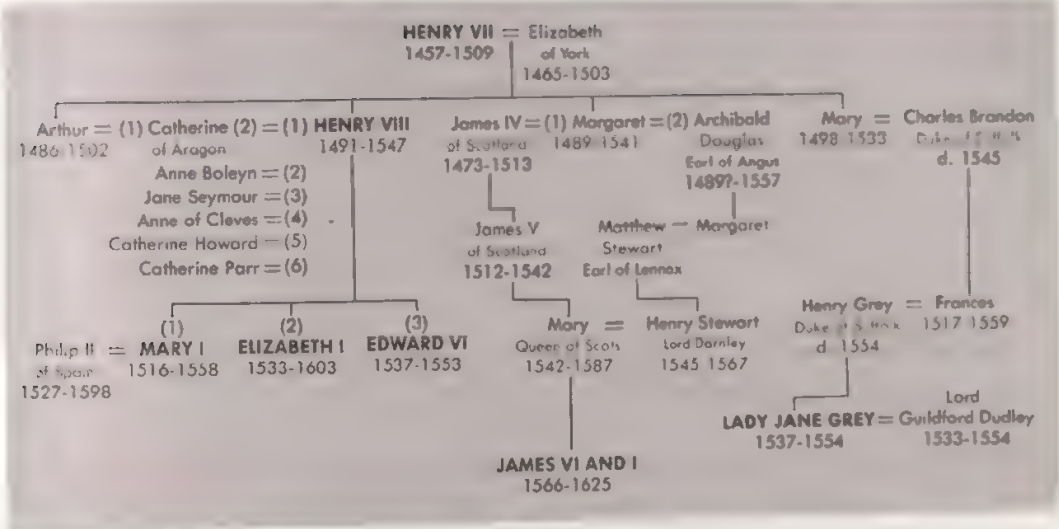
**Henry VIII** (Reigned 1509-1547)



**Edward VI** (Reigned 1547-1553)

National Portrait Gallery, London

## The House of Tudor



the royal revenues. He also made some use of parliaments. James arranged a marriage between his eldest daughter, Margaret, and the son of the French king, in order to strengthen the traditional Scottish alliance with France.

James was an athletic man, as well as a poet and musician. While in prison, he wrote a poem, *The King's Quair* (*The King's Book*), in honour of the Englishwoman whom he had married. She was Lady Jane Beaufort, a granddaughter of Edward III of England. Yet James made many enemies, one of whom murdered him in 1437. James left a 6-year-old son, James II.

James II was left in the custody of his mother, Queen Jane. Jane appointed Archibald, fifth Earl of Douglas, as lieutenant governor of Scotland. But Archibald's enemies soon killed him. When James grew to manhood, the Douglasses and the Stuarts resumed an ancient feud. James had William, the sixth Earl of Douglas, executed.

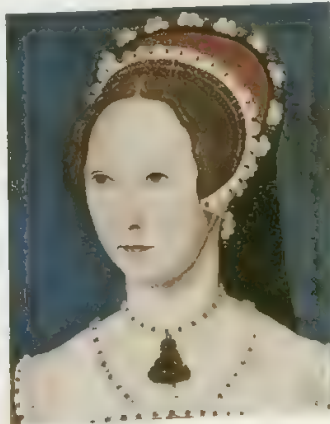
The king himself stabbed to death another William, the eighth earl, in 1452. In 1460, James was killed when a cannon exploded while he was besieging Roxburgh Castle, then held by the English. He, too, left a child to succeed him.

James III was only 9 years old when he became king. In 1465, he came under the control of the Boyd family, who managed state affairs and arranged a useful marriage between James and Margaret of Denmark. The marriage made Orkney and Shetland part of Scotland. But the Boyds soon lost control. James quarrelled with his brothers and, despite making important political and administrative reforms, he became personally unpopular with the nobility. In 1488, James was defeated at the Battle of Stirling by a group of nobles. He was murdered soon afterwards.

James IV, the son of James III, was 15 when he came to the throne. He was a strong king. He held parlia-



Lady Jane Grey (Proclaimed 1553)



Mary I (Reigned 1553-1558)

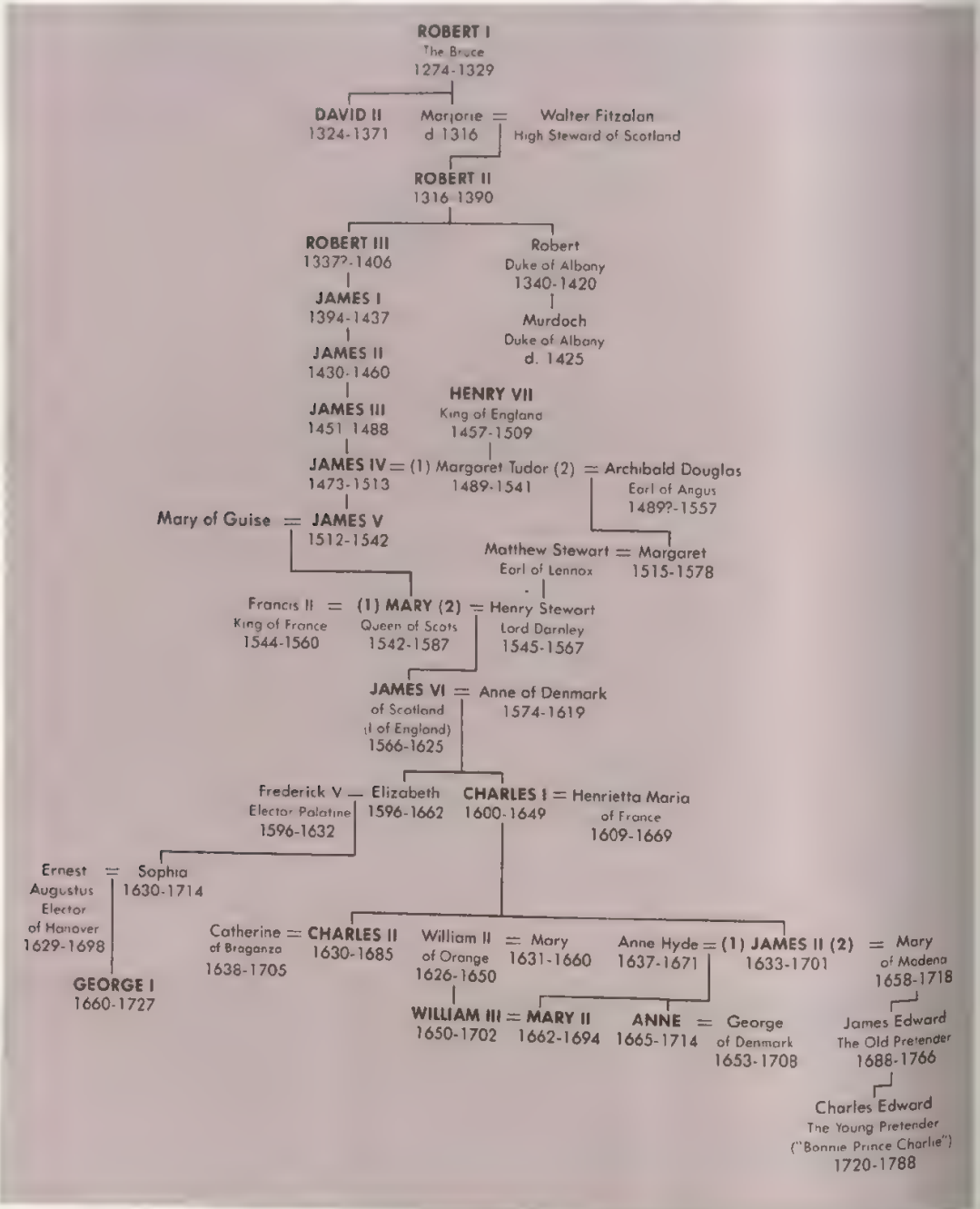


Elizabeth I (Reigned 1558-1603)

National Portrait Gallery, London



The House of Stuart



ments, founded a navy, and enforced justice against his powerful barons. In 1502, James made peace with England and, soon afterwards, married Margaret Tudor, the eldest daughter of Henry VII of England. Through this important marriage, the Stuarts later claimed the throne of England.

But in 1512, James supported Scotland's old ally,

France, in a war with England. The English defeated and killed James at the Battle of Flodden in 1513.

James's son, James V, was only 17 months old when he became king. During his boyhood, the Scottish lords continually quarrelled for power. James began to rule for himself at the age of 16. James was extremely pro-French and in time was forced into a war with his

uncle, Henry VIII of England. The English decisively defeated the Scots in 1542. James died soon afterwards, leaving the throne to his week-old baby daughter, Mary.

Mary, Queen of Scots, was brought up in France as a Roman Catholic. While she was in France, Scotland became a Protestant country. In 1558, Mary married the *Dauphin* (crown prince) of France. Mary's husband became King of France as Francis II in 1559.

Francis died suddenly in 1560. Mary returned to Scotland, a Roman Catholic queen of a fiercely Protestant country. In 1565, she married her cousin, Henry Stewart, Earl of Darnley. In 1567, Darnley was mysteriously murdered. Soon after, Mary married the Earl of Bothwell, whom many people believed was Darnley's murderer. As a result of this marriage and of Mary's religion, her subjects rebelled against her. They defeated her in battle at Carberry Hill, Lothian Region, and forced her to abdicate. Mary fled to England to seek the protection of Elizabeth I. Elizabeth kept her a prisoner for 18 years, before having her executed.

As the granddaughter of Margaret Tudor, Mary, Queen of Scots, was heir to the unmarried Elizabeth I of England. After Mary's execution, the succession passed legitimately to her son by Lord Darnley, James VI. Thus, with the death of Elizabeth in 1603, the English and Scottish crowns were united. James VI of Scotland became James I, the first monarch to rule England, Ireland, Scotland and Wales simultaneously.

### The Stuarts in England

The Stuart monarchs began with full control of the national government in their hands. But they could not raise the money to run state affairs without the help of Parliament. Wealthy property owners and businessmen were now in Parliament, along with the old nobility. Many were *Puritans* (extreme Protestants) who disliked the Catholic ritual aspects of the Church of England. They clashed with the Stuarts, and this conflict produced civil war in the 1640's.

James I was a clever and learned man. As James VI of Scotland, he had secured his position by tenacity and intrigue. He took his English kingship seriously, but he could not manage Parliament and was always in debt. In

later life, he gradually gave up control of the government to his favourites, notably the Duke of Buckingham. James's haughty son Charles also had more than his fair share of power.

James made concessions to both Catholics and Protestants. But he made people angry by claiming that kings were "as gods" and that the Stuart dynasty was endowed with the "divine right of kings."

**King versus Parliament.** Charles I succeeded James in 1625. He inherited wars with both Spain and France and he expected Parliament to vote taxes for his military needs. When Parliament refused, he tried to rule without it for 11 years (1629-1640).

The Puritans distrusted Charles because he was a member of the Church of England and liked ritual. They demanded reform, especially the abolition of bishops. In 1638, Charles made war on the Scots when they refused to accept a new prayer book that he imposed upon them. Parliament, recalled in 1640, refused to help Charles financially until he heeded their religious and political grievances. Charles refused the most extreme demands and tried to arrest his Parliamentary opponents. As a result, civil war broke out in 1642.

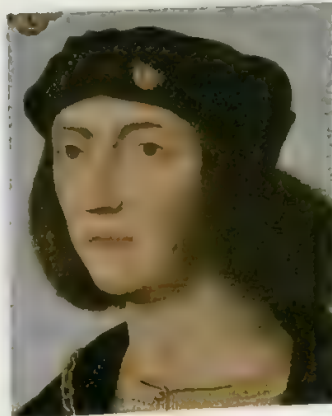
The war lasted for nearly seven years. Charles resisted Parliament's demands for a greater share in the government, and for religious reform. He plotted to keep the war going. In January 1649, Charles was tried and executed for "treason to his people." Parliament abolished the monarchy and the Church of England, and set up a *Commonwealth* (republic).

The Parliamentarians had failed to plan the form of the new constitution they now set up, and so, in 1653, Oliver Cromwell took sole control as a dictator. After Cromwell's death in 1658, weaker men tried to seize power. In 1660, the people restored the monarchy and Charles II, son of Charles I, returned from exile.

**The Restoration.** Charles II was clever, witty, and knowledgeable in such subjects as history and science. He was also pleasure-loving, unfaithful to his wife, and disloyal to his ministers. Charles had to accept a great reduction of the powers of the monarchy. Most of the Tudor courts and councils were permanently abolished. Although the Church of England and its bishops were



James III (Reigned 1460-1488)



James IV (Reigned 1488-1513)



James V (Reigned 1513-1542)

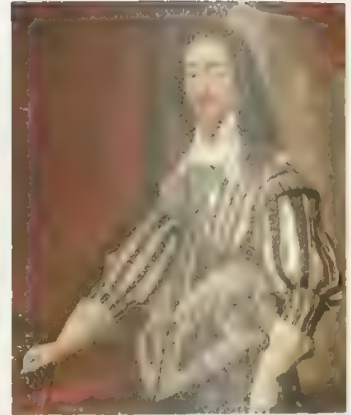




**Mary, Queen of Scots**  
(Reigned 1542-1567)



**James VI and I**  
(Reigned 1567-1625)



**Charles I**  
(Reigned 1625-1649)

National Portrait Gallery, London

re-established, a Puritan, or Nonconformist, minority had grown up that could not be destroyed. Yet the Restoration was a time of renewed enthusiasm for arts and sciences. The theatre, which had been banned by the Puritans, flourished again, and in 1660, Charles founded the Royal Society.

When James II came to the throne in 1685, the English kingship was in a strong position. But James had become a Roman Catholic, and when his son, James Edward Stuart, was born in 1688, the people feared the prospect of being ruled by a Catholic dynasty. They rebelled and drove James and his family into exile. The figurehead of the rebellion was James's own son-in-law, Prince William of Orange, ruler of the Netherlands. William had married James's daughter, Mary, in 1677. In 1689, the parliaments of England and Scotland elected William and Mary as joint monarchs. William III was reserved and unpopular, but the people loved his wife, Mary II. She died in 1694.

Parliament curbed the privileges of the monarchy. The Bill of Rights of 1689 challenged the monarch's right to suspend or dispense with the laws of the land. The Act of Settlement of 1701 dealt with the succession to

the throne. Under the Act, no Roman Catholic could ever again succeed as monarch.

William and Mary left no children, and the throne passed to Anne, Mary's sister, in 1702. Anne presided over Cabinet meetings and strongly supported the Church of England. Political parties, known as *Whigs* and *Tories*, had come into being, but Anne was anxious to be a queen above party. In 1707, England and Scotland were united with one Parliament. Anne died with no direct heir in 1714. The throne then passed to the Elector George of Hanover, who was a grandson of James I's daughter, Elizabeth. George was a staunch Protestant.

### The House of Hanover

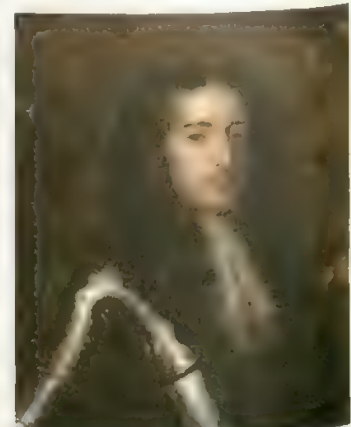
The Protestant House of Hanover took over the British throne at the invitation of the British Parliament. The feeling of the people was strongly against a Roman Catholic monarch. For this reason, two attempts to bring back the Stuarts failed in 1715 and 1745. Neither James Edward Stuart, the Old Pretender, nor his son Charles Edward, the Young Pretender, would give up their Catholic religion.



**Charles II** (Reigned 1660-1685)



**James II** (Reigned 1685-1688)



**William III** (Reigned 1689-1702)

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Although the Hanoverian kings ruled over Hanover as well as over Britain, the governments of the two countries were kept separate. However, the countries did have a common foreign policy.

**The rise of Cabinet government.** The first Hanoverian, George I, was a man of strong autocratic character. He was a capable soldier who had fought against France in the War of the Spanish Succession (1701-1714). He had definite views, especially about foreign policy.

When George I came to the throne, he was 54, and he spoke no English. The Whigs, who had helped to bring about the Protestant succession to the throne, formed all the king's governments. Sir Robert Walpole, the Whig leader, was the king's chief minister.

At first, George presided over the meetings of the Cabinet Council. The Prince of Wales, later to be George II, understood English and attended these meetings, translating for his father. But George I quarrelled with his son and excluded him from the Council. Without an interpreter, George was in difficulty. Soon, he ceased to attend meetings, thereby promoting the development of Cabinet government.

George II, who became king in 1727, lacked his father's strength of character. But he was a brave and competent soldier. In 1743, at Dettingen in Bavaria, George II was the last English king to lead his army into battle. George was influenced by his wife, Queen Caroline of Ansbach, though he was not faithful to her. Queen Caroline died in 1737.

Frederick, the son of George and Caroline, died before his father did. Therefore, Frederick's son, George, became king when George II died in 1760. George III realized that immense powers still remained with the monarchy. Less Hanoverian in outlook than his predecessors, George III was proud to be English and took an active interest in politics. In the early years of his reign, Britain enjoyed prosperity. It had won the Seven Years' War (1756-1763) against France and had acquired much of India and Canada. But when Britain's American Colonies rebelled in 1775, the colonists blamed George for his government's policies and branded him as a tyrant. In 1782, with the American Colonies lost, George replaced his incompetent Prime Minister, Lord North, with William Pitt the Younger.

In 1765, George III had a bout of what seemed like madness. During the next 23 years, he had periods of apparent insanity. Many experts now believe that George was suffering from a rare disease called *porphyria*, which made him emotionally unbalanced. In 1788, he had to be put in a straitjacket. For another 23 years, Britain was almost without a king as it fought a long war with revolutionary and Napoleonic France. George's eldest son, Prince George—whom he distrusted—did not become regent until 1811. This year marked the beginning of that colourful period of British history known as the *Regency*.

Prince George was 58 years old when he succeeded to the throne on the death of his father in 1820. George IV had spent most of his life in the pursuit of pleasure. He took only a small interest in government. His private life was scandalous. But George was a man of taste and commissioned many public works.

George was succeeded in 1830 by his brother William. William IV was nearly 65 when he became king. He was unconventional, good-hearted, and energetic, but a timid ruler. He reluctantly accepted the reform of Parliament in 1832. William died in 1837.

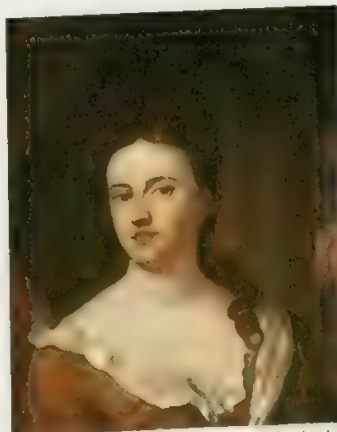
**The Victorian Age.** Victoria was 18 years old when she succeeded her uncle, William IV. Her father, Edward, Duke of Kent, was a younger son of George III. He died in 1820. Her mother, the Duchess of Kent, was a German princess, Victoria of Saxe-Coburg.

Victoria inherited a throne that had lost power, dignity, and prestige. Through the years, she restored the dignity of the monarchy, but its power declined steadily. The monarchy became principally a symbol of the unity of the British Empire. Victoria and her successors came to accept that the chief role of the monarch was ceremonial rather than political.

Victoria's first Prime Minister, Lord Melbourne, coached her in the duties of monarchy. She proved to be a strong-minded, conscientious, hard-working, and dutiful queen. Her other tutor in statecraft was her cousin, Prince Albert of Saxe-Coburg-Gotha, whom she married in 1840. Albert was a cultured man, interested both in the arts—notably music and painting—and the sciences. Victoria was devoted to Albert and, in 1857, made him Prince Consort. They had nine children.

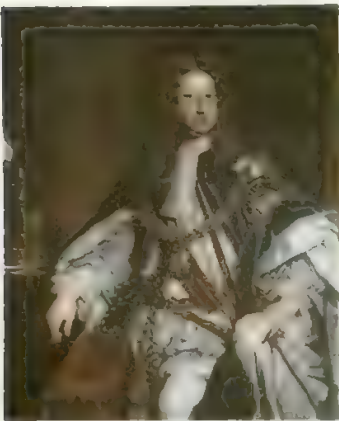


Mary II (Reigned 1689-1694)



Anne (Reigned 1702-1714)  
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**George I** (Reigned 1714-1727)

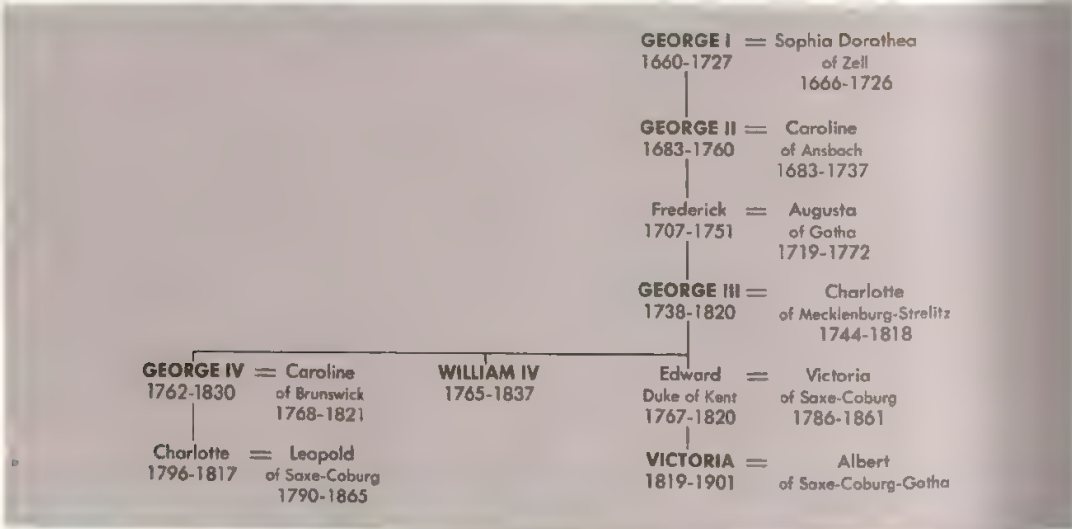


**George II** (Reigned 1727-1760)



**George III** (Reigned 1760-1820)

**The House of Hanover**



**George IV** (Reigned 1820-1830)



**William IV** (Reigned 1830-1837)



**Victoria** (Reigned 1837-1901)  
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Albert died in 1861. After his death, Victoria tried to withdraw into seclusion, though she assumed the title of Empress of India in 1877. Towards the end of Victoria's reign, people took a more romantic view of the monarchy and of the "Great White Queen" who ruled over so many lands. They celebrated with real enthusiasm Victoria's *Golden Jubilee* (50 years' reign) of 1887 and *Diamond Jubilee* (60 years' reign) of 1897.

Victoria had not been able to inherit the electorate of Hanover as long as a male relative was still living. Thus, the English link with Hanover had been broken in 1837, when an uncle of Victoria's succeeded William IV there. When Victoria married Albert, she took his surname of Saxe-Coburg and began a new royal house, of which her son Edward was the first monarch.

### The Houses of Saxe-Coburg and Windsor

**The years of change.** Victoria was a strict mother. Her son, Edward VII, who succeeded her in 1901 at the age of 60, reacted against the restraints of his early upbringing. He loved food and drink, the company of women, horse racing and gambling, and the theatre. But he had political awareness and helped towards the signing of the *Entente Cordiale*, the Anglo-French alliance.

Edward's younger son, George V, who succeeded him in 1910, was a sailor king. The death of George's elder brother, the Duke of Clarence, in 1892 placed George in the line of succession after his father and ended his naval career. George married Clarence's fiancée, Princess Mary (popularly called May) of Teck, later Queen Mary. During World War I, George V changed the name of the royal family from Saxe-Coburg to Windsor. The name *Saxe-Coburg* was German, and Britain was at war with Germany.

In political matters, George V usually tried to be a conciliator. During the crisis of 1931, for example, when the Labour government resigned during a time of economic depression, George invited Ramsay MacDonald to continue as Prime Minister of a "national government" supported by Conservatives and Liberals.

In 1932, George began the custom of broadcasting to his people on Christmas Day each year. George celebrated his *Silver Jubilee* (25 years' reign) in 1935. He died in 1936.

**The modern monarchs.** People in 1936 had high hopes of George's successor, the charming and good-looking Edward VIII. As Prince of Wales, Edward had shown himself to have up-to-date and democratic views,



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Edward VII (Reigned 1901-1910)



George V (Reigned 1910-1936)



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Edward VIII (Reigned 1936)



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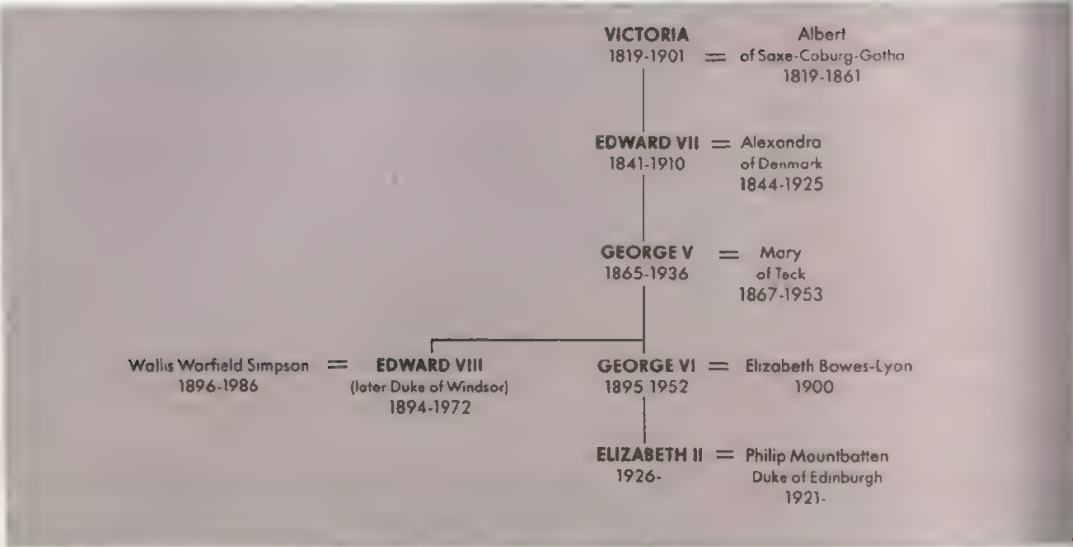
George VI (Reigned 1936-1952)



Elizabeth II (Reigned 1952-



The Houses of Saxe-Coburg and Windsor



to be deeply sympathetic towards the unemployed, and to be somewhat more modern in his approach to the monarchy. But his refusal to reverse his decision to marry Mrs. Wallis Simpson, an American divorcee, led ultimately to his *abdication* (giving up the throne). He was succeeded by his younger brother, Prince Albert, Duke of York. In coming to the throne, Prince Albert took the title of George VI.

George VI, like his father, had followed a naval career. But he had been obliged to give it up because of poor health.

During World War II, George fulfilled his duties conscientiously, and people much admired his conduct during the air raids on London. George and his queen, Elizabeth, were popular because of their modesty and devotion to duty.

George VI died in 1952, leaving the throne to his elder daughter, Elizabeth. Queen Elizabeth II, aided by her husband, Prince Philip, Duke of Edinburgh, has contributed to the process of making the constitutional monarchy more democratic. Some have criticized the cost to the state of supporting the royal family during Elizabeth's reign, but the majority of her subjects have a great affection for her. In 1977, Elizabeth celebrated her Silver Jubilee. Millions of people took part in street parties and followed her celebrations on television.

**Related articles.** Further information on people and events mentioned in this article may be found in *World Book* under entries appearing in the following lists.

Biographies

- |                        |                                   |
|------------------------|-----------------------------------|
| Alfred the Great       | Burghley, Lord                    |
| Anne (of England)      | Caesar, Julius                    |
| Ascham, Roger          | Canute                            |
| Babington, Antony      | Caratacus                         |
| Ball, John             | Charles (I; II of England)        |
| Becket, Saint Thomas à | Charles (VI; VII; VIII of France) |
| Bothwell, Earl of      | Cranmer, Thomas                   |
| Brian Boru             | Cromwell, Oliver                  |
| Bruce, Robert          | Cromwell, Thomas                  |

- Damley, Lord  
David (I; II of Scotland)  
Drake, Sir Francis  
Dunstan, Saint  
Edward (The Black Prince)  
Edward (I; II; III; IV; V; VI of England; VII; VIII of the United Kingdom)  
Edward the Confessor  
Egbert  
Elizabeth I  
Elizabeth II  
Essex, Earl of  
Francis (II of France)  
George (I; II; III; IV; V; VI of the United Kingdom)  
Grenville, Sir Richard  
Grey, Lady Jane  
Harold (I; II of England)  
Hawkins, Sir John  
Hengest and Horsa  
Henry (I; II; III; IV; V; VI; VII; VIII of England)  
Hywel Dda

- James (I; II of England)  
John (of England)  
John of Gaunt  
Langton, Stephen Cardinal  
Latimer, Hugh  
Macbeth  
Mary (I; II of England)  
Mary, Queen of Scots  
Monmouth, Duke of  
Montfort, Simon de  
Mortimer  
Odin  
Philip (II of Spain)  
Princes in the Tower  
Richard (I; II; III of England)  
Ridley, Nicholas  
Somerset, Duke of  
Stephen  
Victoria  
Wallace, Sir William  
Walsingham, Sir Francis  
William (I; II; III of England)  
Wolsey, Thomas Cardinal

Other related articles

- Agincourt, Battle of  
Angles  
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Boyne, Battle of the  
Celts  
Chevy Chase  
Church of England  
Church of Scotland  
Civil War, English  
Crécy, Battle of  
Danegeld  
Danelaw  
Divine right of kings  
Domesday Book  
Dunbar, Battles of  
Eleanor Crosses  
Feudalism  
Garter, Order of the  
Hastings, Battle of  
High kings  
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Puritans  
Reformation  
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Saxons  
Scotland, History of  
Scottish literature  
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Spanish Armada  
Stamford Bridge, Battle of  
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Tewkesbury

Thirty-Nine Articles  
Thirty Years' War  
Tory Party  
United Kingdom, History of  
the  
Vikings  
Wales (History)  
Wars of the Roses  
Wessex  
Whig Party  
Witenagemot

### Outline

- I. Early rulers
- II. The Anglo-Saxon and Danish kings
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  - B. Northumbria
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- XV. The Houses of Saxe-Coburg and Windsor
  - A. The years of change
  - B. The modern monarchs

### Questions

- Who is believed to be the founder of the English navy?  
Which Scottish king defeated the English at the Battle of Bannockburn?  
Which battle ended Viking rule in Ireland?  
Which two royal houses fought the Wars of the Roses?  
Who became the first head of the Church of England?  
Who was the first woman to rule in her own right as queen?

**King's Lynn and West Norfolk** (pop. 128,400) is a local government district and borough in Norfolk, England. It contains two historic towns, King's Lynn and Downham Market, and a popular seaside resort, Hunstanton. Agriculture is an important occupation throughout the borough. The towns of the borough have processing and canning industries associated with farming, and a range of other industries, including glass-making. Samphire, a seaweed, is eaten locally as a delicacy. Horatio Nelson was born in the district, at Burnham Thorpe. The royal estate of Sandringham also is in the borough. See also Norfolk.

**Kings of Malaysia.** See Malaysia, Government of; Royal families.

**Kingsford Smith, Sir Charles** (1897-1935) Australia's greatest aviation pioneer, made the first flight across the Pacific Ocean from the United States to Australia. He and a crew of three made the flight in 1928 in a three-engined Fokker aircraft called the *Southern Cross*. They travelled more than 12,210 kilometres in a flying time of 83 hours 11 minutes. Modern jet passenger aircraft now fly from San Francisco to Brisbane in about 12 hours along the route that Kingsford Smith pioneered. His transpacific flights made him a national hero.

Kingsford Smith also made the first nonstop flight across Australia and the first flights across the Tasman Sea between Australia and New Zealand. He set several records for air routes between the United Kingdom (UK) and Australia.

**Early life.** Charles Edward Kingsford Smith was born in Brisbane, Queensland. His family settled in Sydney in 1909. Kingsford Smith studied electrical engineering at Sydney Technical College. Then he joined the Australian Imperial Force (AIF). He served with the AIF as a motorcyclist both in Gallipoli and in France during World War I (1914-1918).

Kingsford Smith was later selected for training as a pilot with the Royal Flying Corps. In France, he became a fighter pilot and was shot down in an encounter with three German fighters. He was wounded in this incident and was sent to the UK as an invalid. There he received the Military Cross for bravery.

**Flying in Australia.** Kingsford Smith returned to Australia in 1921 and became one of the original pilots of West Australian Airways, an airline that started the first regular airmail service in Australia. In 1927 Kings-



*Southern Cross* is the small plane in which Charles Kingsford Smith made his pioneering flight across the Pacific Ocean from San Francisco to Brisbane. The plane is now on display at Brisbane Airport.





**Sir Charles Kingsford Smith** became an Australian national hero after his flight across the Pacific Ocean.

ford Smith and fellow Australian Charles Ulm completed a flight round Australia in the record time of 10 days 5 hours 15 minutes. For this achievement, the government of New South Wales gave them a financial award. With this money and funds donated by the Returned Services' League and a Melbourne businessman, Sidney Myer, they left by ship for the United States to prepare for the transpacific flight. During the voyage, the ship's officers taught them navigation.

**Flying the Pacific.** On May 31, 1928, the *Southern Cross* took off from Oakland, on San Francisco Bay, and flew to Honolulu. From there, Kingsford Smith and his crew headed into unknown conditions. No aircraft had ever flown across the ocean to Fiji or Australia. There were no radio beacons for navigation and no reports on the speed or direction of the upper winds. After surviving severe storms, the aeroplane landed on a sports ground at Suva, in Fiji. Kingsford Smith had the craft towed to a nearby beach and took off on the last leg of the flight.

The *Old Bus*, as the aeroplane was nicknamed, landed in Brisbane on June 9. Both Kingsford Smith and Ulm were awarded the Air Force Cross and made honorary officers of the Royal Australian Air Force.

**The Coffee Royal Affair.** In 1929, storms forced Kingsford Smith, Ulm, and two other crew members to land the *Southern Cross* at Coffee Royal, a mud flat in Western Australia. Two pilots died in the ensuing search for the missing aircraft. Public anger at this loss of life caused Kingsford Smith to lose popularity.

**Other great flights.** In 1929, Kingsford Smith and Ulm set a new record of 12 days 18 hours from Sydney to London. In June 1930, Kingsford Smith completed the first east-west flight across the Atlantic Ocean. In October 1930, he flew solo from the UK to Darwin, in Australia's Northern Territory, in 9 days 22 hours 15 minutes.

Kingsford Smith was knighted in 1932. In 1933, he flew solo from Darwin to the UK in the record time of 7

days 4 hours 44 minutes. In October 1934, with Gordon Taylor as his navigator, he made the first transpacific flight from Australia to the United States.

On Nov. 6, 1935, Kingsford Smith and another pilot, J. Pethybridge, disappeared during an attempt on the UK-Australia record. Two years later, wreckage of their aircraft was found near the coast of Burma.

See also **Taylor, Sir Gordon; Ulm, Charles.**

**Kingsley, Charles** (1819-1875), was a famous British author and clergyman. He preached "Christian Socialism," a religious and political philosophy that urged the Church of England to take an active part in easing social problems.

Kingsley's first two novels, *Alton Locke* (1850) and *Yeast* (1851), are examples of the Christian Socialism philosophy. The novels were published anonymously and dealt with working-class conditions in Victorian England. Kingsley believed in developing a strong body along with a pious spirit. This belief was sometimes called *muscular Christianity*. Kingsley's novel *Hypatia* (1853) shows this attitude.

*Westward Ho!* (1855), a historical novel full of high adventure, is set in the 1500's in the days of Queen Elizabeth I. *The Water Babies, A Fairy Tale for a Land-Baby* (1863), written for his son, is a charming fantasy about a young chimney sweep who escapes from his dismal world into a marvellous underwater world.

Kingsley was born in Devon, England, and became an Anglican clergyman in 1842. For a time, he served as chaplain to Queen Victoria. He later taught history at Cambridge University. Kingsley was strongly anti-Catholic. He became involved in a famous controversy with John Henry Cardinal Newman, a church reformer who became a Roman Catholic convert. Kingsley wrote a pamphlet that questioned Newman's motives and sincerity. Kingsley's pamphlet led the cardinal to write his autobiography *Apologia pro Vita Sua* (1864).

**Kingsley, Sidney** (1906- ), is an American dramatist known for realistic plays that reveal a concern for social problems. Kingsley's works probe the complex problems of people interacting with social conditions.

Kingsley's play *Men in White* (1933) won a Pulitzer Prize. It deals with the medical and moral problems of doctors. *Dead End* (1935) dramatizes the destructive effects of economic inequality. *The Patriots* (1943) studies the significance of the conflicts between U.S. political leaders Thomas Jefferson and Alexander Hamilton.

*Detective Story* (1949) and *Darkness at Noon* (1951) are Kingsley's most complex studies of the individual conscience. The first concerns the individual in conflict with the law, and the second describes the individual in conflict with Communism. Kingsley was born Sidney Kieschner in New York City.

**Kingsnake** is any one of a group of American snakes, all of which prey on other snakes. These reptiles are harmless to people. They are somewhat immune to snake venom, and do not hesitate to attack and eat rattlesnakes. Kingsnakes also eat bird and turtle eggs, and rodents and other small furred animals. They coil around their prey and squeeze it to death. Kingsnakes range in length from 45 to 180 centimetres. They may be marked with black, brown, white, red, and yellow bands or rings. The *common kingsnake* is black with narrow yellow bands across its back. It lives in the Eastern

United States. The common kingsnake reaches a length of about 105 centimetres.

**Scientific classification.** Kingsnakes belong to the common snake family, Colubridae. The common kingsnake is *Lampropeltis getulus*.

See also Milk snake.

**Kingston** (pop. 104,041; met. area pop. 524,638) is the capital city and chief port of the Caribbean island country of Jamaica, a part of the West Indies. Kingston lies in the *parishes* (local government districts) of Kingston and Saint Andrew, on the southeast coast of the island. The city is at the northern end of a harbour that is nearly landlocked. See **Jamaica** (map).

**People.** Most of Kingston's inhabitants are of African origin. The city is also home to people of Indian and Chinese descent, and most members of Jamaica's Jewish community live in Kingston and Saint Andrew. Small communities of German, Portuguese, English, American, Canadian, Syrian, and Spanish people also live in Jamaica's capital.

**Government.** The members of the House of Representatives and Senate, Jamaica's national parliament, meet in Gordon House, located on Duke Street. The Kingston and Saint Andrew Corporation (KSAC) is the administrative body responsible for the running of local government affairs. The KSAC's members are elected officials.

**Economy.** Manufacturing and tourism are the major sources of employment in Kingston. Manufactured goods include cement, clothing, furniture, metal goods, and pharmaceuticals. Food-processing industries include the production of citrus and other fruit juices, rum, beers, edible oils, flour, canned fruit and vegetables, and bottled beverages. The production of compact discs and audio tapes is a growing industry. The retail trade provides employment for many Kingstonians. Port Bustamante is Kingston's chief port.

Several private and independent minibus operators

provide public transport services within the city. There are also many privately owned taxi companies. Several major roads lead out of the capital. The Norman Manley International Airport at the Palisadoes handles domestic and international flights.

Three major daily newspapers, the *Gleaner*, the *Jamaica Record*, and the *Daily Star*, are published in Kingston. Of the 10 radio stations in Jamaica, 3 are in Kingston. The Jamaica Broadcasting television station is also in Kingston.

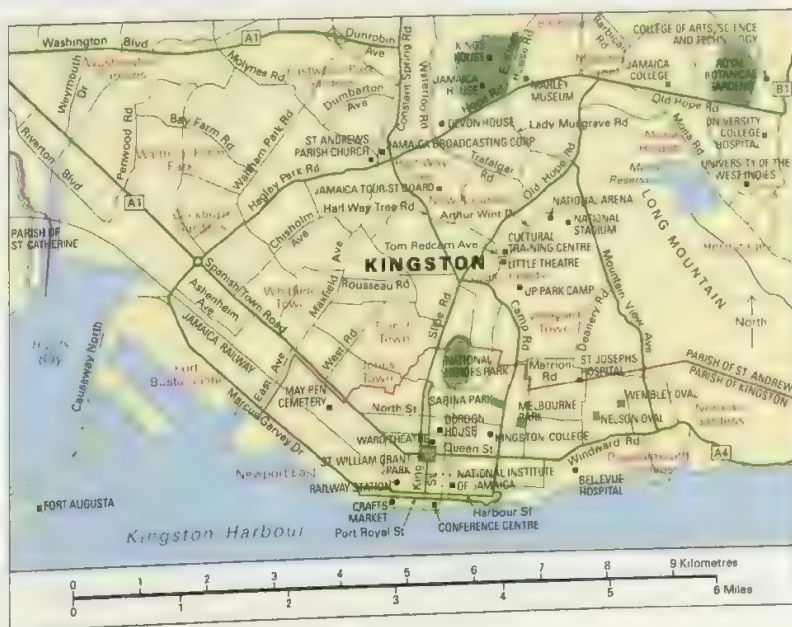
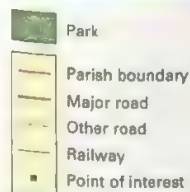
**Education and cultural life.** The University of the West Indies (UWI) is at Mona campus, about 8 kilometres from Kingston. Within Kingston's boundaries there are 18 primary schools and 9 secondary schools. Outside Kingston, but within the parish of Saint Andrew, there are a further 32 primary schools, 13 secondary schools, and 4 colleges.

Sabina Park, Jamaica's main cricket ground is in central Kingston and seats 12,000. Up Park Camp, on Camp Road, has a large polo and soccer field. There are sports facilities of all kinds in the city.

Tom Reddam Drive is the cultural heart of Jamaica. The public library service, and the Little Theatre are located there. The Cultural Training Centre on Arthur Wint Drive houses the National School of Dance, Art, Drama, and Music; the National Stadium, an athletics venue (built in 1962 for the Commonwealth Games); and the National Arena. Across the street from St. William Grant Park is the Ward Theatre. East Street is the location of the National Institute of Jamaica.

**History.** The Spaniards founded a port on the site of Kingston in 1534. In 1692, when an earthquake submerged the old capital of Port Royal, the surviving inhabitants resettled in Kingston. Kingston soon became an important trading port and Jamaica's main commercial centre. But it did not become the capital of Jamaica until 1872, when it replaced Spanish Town, 16 kilometres to the west.

## Kingston







**Kingston** is the commercial and industrial centre of Jamaica and the country's major port. Its bustling business district has modern office buildings and luxury hotels.

In 1907, Kingston was almost destroyed by an earthquake which submerged most of Port Royal. It was rebuilt and today is an expanding, modern capital with high-rise office blocks and modern hotels.

**Kingston upon Hull.** See Hull.

**Kingston upon Thames** (pop. 130,300) is an English borough within the Greater London area. It includes the former boroughs of Kingston upon Thames, Malden and Coombe, and Surbiton. The borough is situated on the River Thames, southwest of London. Its charter gives it the status of a royal borough. A Coronation Stone, preserved as a monument, dates from the time when Saxon kings of England were crowned at Kingston. According to tradition, it is the stone on which such kings as Ethelred the Redeless were crowned.

See also London.

**Kingstown** (pop. 18,830) is the capital and largest city of St. Vincent and the Grenadines, an island country in the Caribbean Sea. It lies in foothills on the southwest coast of St. Vincent Island. Kingstown has a busy harbour whose import and export activities are the basis of the city's economy. The city has few other industries, and its unemployment rate is high. Most buildings in Kingstown are small and made of brick or wood. Near the city are an old British fort and a botanical garden.

Carib Indians lived in the Kingstown area, possibly as early as the 1300's. Beginning in the 1600's, France and Great Britain fought for control of St. Vincent Island. Britain governed the island from 1783 to 1979, when it became part of the independent country of St. Vincent and the Grenadines.

**Kingswood** (pop. 87,100) is a local government district in the county of Avon, England, lying east of Bristol and north of the River Avon. The district is a popular residential area for people who commute to work in Bristol. Local industries include engineering and printing, and the manufacture of brushes, foodstuffs, and furniture. A beacon at Hanham Mount commemorates the use of the mount by the preachers George Whitefield and John

Wesley for open-air religious meetings. About one-third of Kingswood is in the green belt around Bristol (see **Green belts**).

See also **Avon** (county); **Bristol**.

**Kinkajou** is a member of the raccoon family that can hang from tree branches by its long tail. The kinkajou has a slim body and grows about 90 centimetres long, including the tail. It has dense, woolly, yellow-brown fur. Kinkajous live in tropical forests from southern Mexico to Brazil. They hide in tree holes during the day and feed at night on fruit and insects. The female kinkajou may bear one or two young a year. See also **Coati**; **Raccoon**.

**Scientific classification.** The kinkajou belongs to the raccoon family, Procyonidae. It is *Potos flavus*.



The kinkajou uses its long flexible tail for balance in trees. It can hang head-downward, with its tail grasping a limb.

**Kinnock, Neil Gordon** (1942- ), a British politician, was leader of the Labour Party from 1983 to 1992. He resigned after leading the party for the second time to an election defeat. When he took office, he was the youngest person ever to lead the party. Kinnock belonged to the left wing of the Labour Party, which demanded greater state control of industry, a high level of state expenditure on social welfare, and *unilateral* (one-sided) nuclear disarmament for the United Kingdom.

Kinnock was born in the small town of Tredegar, in Gwent, South Wales. His father was a steelworker who had also worked as a coal miner. This was an area of poverty, where employment opportunities were few. He attended Lewis School, Pengam, and University College, Cardiff, from which he graduated in 1965 with a degree in industrial relations and history. At Cardiff, he became chairman of the Socialist Society and president of the Students' Union.

From 1966 to 1970, Kinnock served as a tutor-organizer for the Workers' Education Association (WEA). He was a member of the Welsh Hospitals Board from 1969 to 1971.



Neil Kinnock

In 1970, Kinnock entered the House of Commons as member of Parliament (MP) for the Gwent constituency of Bedwellty. Following constituency reorganizations, he was elected MP for Islwyn in 1983.

Soon after becoming an MP, Kinnock gained a reputation for fiery speeches calling for an end to nuclear weapons and for increased spending on health and education. During the 1974-1979 Labour government led by Harold Wilson and later by James Callaghan, Kinnock held minor posts but no ministerial office. From 1974 to 1975, he was parliamentary private secretary to Michael Foot, secretary of state for employment. Kinnock was an active member of his party's policy-making bodies. In 1974, he became a director of the influential left-wing magazine *Tribune*. In 1978, he was elected to the Labour Party's National Executive Committee.

Following the election of a Conservative government under Margaret Thatcher in 1979, Kinnock became Labour's spokesman on education. After Foot became leader of the Labour Party in 1980, Kinnock helped move the party further to the left. Labour at this time reviewed a wide range of policies. These included its position on the United Kingdom's continued membership of the North Atlantic Treaty Organization and of the European Community.

Labour failed to win the general election in June 1983, and Foot resigned as leader. Kinnock was elected to succeed him. Labour fought its first general election under Kinnock's leadership in 1987 and was again heavily defeated by the Conservatives. This was partly due to a strong performance by the Liberal-Social Democratic Party Alliance, a grouping of centre parties which included some former Labour MPs. Following this defeat, the Labour Party undertook a major policy review. Kinnock steered his party towards accepting the need for multilateral and bilateral moves on nuclear disarmament, and towards moderating its traditional views on state ownership of industries. Kinnock resigned as party leader following Labour's unexpected third consecutive election defeat by the Conservative Party in April 1992.

**Kino, Eusebio Francisco** (1645-1711), was an Italian-born Roman Catholic priest and explorer who founded at least 24 missions in what is now southern Arizona, in the United States, and northern Mexico. He also mapped much of the American Southwest.

Kino was born in Segno, Italy. He joined the Society of Jesus (Jesuits), a Catholic order that did missionary work throughout the world. The Jesuits sent Kino to Mexico, and he arrived there in 1681. He preached to the Indians he met and gave them food and animals they had never seen, including grain, cattle, sheep, and mules. Kino travelled as far west as California. He gained fame for a map that showed southern California was not an island, as most Europeans then believed.

San Xavier del Bac, a mission that Kino opened near present-day Tucson, Arizona, is still used as a church.

**Kinross-shire**, was, until 1975, a county in southern Scotland. See **Perth and Kinross** and **Tayside Region**.

**Kinsella, Thomas** (1928- ), is a leading Irish poet and literary scholar. His poetry is generally serious, and sometimes morbid, as in "Downstream II":

We saw the barren world obscurely lit  
By tall chimneys flickering in their pall,

The haunt of swinish man—each day a spit  
That, turning, sweated war, each night a fall  
Back to the evil dream where rodents ply.  
Man rumped, sow-headed, busy with whip and maul.

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Kinsella was born in Dublin. He worked in the Irish civil service from 1946 to 1965. He then taught at universities in the United States. Kinsella worked at Southern Illinois University from 1965 to 1970, when he became professor of English at Temple University, Philadelphia.

Kinsella's publications include *Poems* (1956), *Downstream* (1962), *Butcher's Dozen* (1972), and *Fifteen Dead* (1979).



Thomas Kinsella

**Kinsey, Alfred Charles** (1894-1956), an American biologist, was one of the first scientists to study human sexual behaviour. His research, which began in the late 1930s, contributed important insight into sexual relationships between human beings.

Kinsey's interest in sex research began when he was a zoology professor at Indiana University in Bloomington, Indiana, U.S.A. While teaching a marriage course, he realized that scientists had little knowledge about human sexual practices. Kinsey began to interview people about their sexual behaviour and attitudes. He received grants to finance his studies. In 1947, Kinsey founded the Institute for Sexual Research at the university.

Kinsey and his colleagues interviewed thousands of men and women in the United States and Canada. The interviews formed the basis of Kinsey's books, *Sexual Behavior in the Human Male* (1948) and *Sexual Behavior in the Human Female* (1953). The two books became known as *The Kinsey Report*. Both were best sellers, though they had been written for doctors, sociologists, and other professionals. They created controversy because many people regarded the books as immoral and some scientists considered them unscientific.

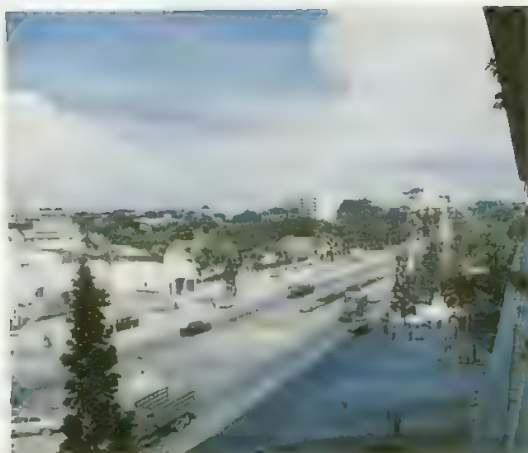
Kinsey was born in Hoboken, New Jersey. He graduated from Bowdoin College, Maine, in 1916 and received a doctor of science degree from Harvard University in 1920. Kinsey became known for his studies of gall wasps before entering sex research.

**Kinshasa** (pop. 2,222,981) is the capital and largest city of Zaire. It lies on the south bank of the Congo (Zaire) River, in the far western part of the country. For location, see **Zaire** (map). Kinshasa is the nation's centre of government, light industry, and transportation.

**The city.** The main section of Kinshasa stretches along the river bank and includes government offices, shops, high-income housing, and the largest campus of the National University of Zaire. Industrial zones spread east and west of this area.

An area of older, low-income housing extends south from the river, and most of Kinshasa's people live there. A wealthy suburb is southwest of the city. Squatter zones, where Kinshasa's poorest people live in mud-brick dwellings, form an arc around the city.





**A boulevard in Kinshasa** is one of the many wide, tree-lined avenues that span the attractive capital city of Zaire.

The population of Kinshasa has grown rapidly for many years. This growth has caused a water shortage, poor sanitation and transportation, and various other problems.

**Economy** of Kinshasa is based chiefly on the activities of Zaire's national government, the largest single employer in the city. Industries in the capital include the production of beverages, processed foods, soap, textiles, and tyres. Trains and trucks carry cargo between Kinshasa and Matadi, Zaire's chief Atlantic Ocean seaport. Kinshasa has the nation's busiest airport.

**History.** By the late 1400's, settlements based on fishing and trade had developed in the area that is now Kinshasa. During the 1700's and 1800's, the area flourished as an African trading centre. In 1881, the British explorer Henry M. Stanley set up an outpost there for King Leopold II of Belgium, his employer. The settlement was named Léopoldville after the king, who ruled the area as a personal possession from 1885 to 1908. Belgium took control of the area in 1908 and made Léopoldville the capital in 1930.

Zaire became independent in 1960, and the name of the capital was changed to Kinshasa in 1966. Since the mid-1960's, the city's population has increased from about 500,000 to about 2½ million.

See also **Zaire** (picture).

**Kioto.** See **Kyoto**.

**Kipling, Rudyard** (1865-1936), was a leading British novelist, poet, and short-story writer. He received the Nobel Prize for literature in 1907, becoming the first British writer to receive the prize.

Kipling achieved his greatest fame for his stories and poems about India during the late 1800's, when that country was a British colony. He became the unofficial spokesman and historian of the British Empire. Kipling believed that Great Britain had the noble mission of spreading British civilization and culture to all parts of the world. He created the phrase *white man's burden*, which he used to justify Britain's economic and military expansion into nonwhite regions.

**His life.** Joseph Rudyard Kipling was born in Bombay, India. His father was an English artist and scholar. Indian

servants took care of Kipling and taught him the Hindi language before he learned English. When Kipling was 5 years old, his parents sent him to school in Southsea, Hampshire, England. He lived with a guardian who treated him in a cruel manner. Kipling later recalled his unhappy early childhood experiences in some of his stories.

At the age of 12, Kipling entered the United Services College, Devon, England. This school had been established chiefly for the children of military officers who could not afford expensive institutions. Kipling wrote about the school in a collection of stories called *Stalky and Co.* (1899). He endured bullying and harsh discipline at the school, but he also established friendships and developed his literary talents. Kipling came to regard the school as a model for training future British leaders.

When Kipling was 17, he refused his parents' offer to send him to university. He returned to India instead and joined the staff of the *Civil and Military Gazette*, a newspaper in Lahore (now in Pakistan). In spite of the pressures of his job, he soon began writing poems and short stories. Many of these early works appeared in the *Civil and Military Gazette* and in the *Allahabad Pioneer*. Kipling went to England in 1889 as a reporter for the *Gazette*. Shortly after he arrived in England, the *London Times*, the world's leading newspaper at that time, printed a review praising his writings. This review gave Kipling his first important recognition as a writer.

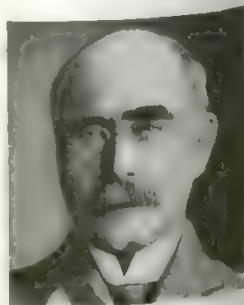
In 1892, Kipling moved to the United States. There, he wrote a novel with an American friend, Wolcott Balestier. Their book, *The Naulakha* (1892), never became popular. In 1892, Kipling married Balestier's sister. The couple lived in Brattleboro, Vermont, until they moved to England in 1896.

Kipling later lost much popularity because of his views on various issues. For example, many people criticized his support of British colonial expansion. Others turned against him because he opposed giving women the right to vote. In addition, Kipling favoured military conscription even before World War I began in 1914. He bitterly attacked the United States for remaining neutral during the early part of the war.

Kipling wrote steadily until his death, but he never regained his popularity. His autobiography, *Something of Myself*, was published in 1937, after his death.

**His works.** Most of Kipling's early writings deal with the grandeur of the British Empire. During the late 1880's, he produced several collections of short stories. The most famous of these books include *Plain Tales from the Hills* (1888), *Soldiers Three* (1888), *The Phantom Rickshaw* (1889), and *Wee Willie Winkie and Other Stories* (1889).

Kipling made heroes of British soldiers and government workers, whom he described as spreading justice, law, and Christian enlightenment in faraway lands. His artistic skill, together with his knowledge of India, made his writings convincing.



**Rudyard Kipling**

Kipling wrote his first novel, *The Light That Failed* (1890), soon after returning to England from India. This book never achieved great popularity, but it showed that Kipling could write sympathetically about subjects other than the British Empire. The novel tells of a young artist and soldier who faces oncoming blindness and the loss of a woman's love. He commits suicide by deliberately exposing himself to enemy fire.

The publication of *Barrack-Room Ballads* (1892), a collection of poems written in Cockney dialect, brought Kipling increasing fame. The second half of this book describes the joys and troubles of Private Tommy Atkins from his days as an army recruit to his retirement from the military. The book was the first in English literature to portray the heroism and quiet devotion to duty of the ordinary British soldier. The *Ballads* include such famous poems as "Danny Deevee," "Fuzzy-Wuzzy," "Gunga Din," and "The Road to Mandalay."

Kipling gained an even wider international audience with his stories for children. *The Jungle Book* (1894), *The Second Jungle Book* (1895), and *Just So Stories* (1902) rank among his most famous collections. The two *Jungle Books* describe the adventures of Mowgli, an Indian child who gets lost in a forest and finds shelter with a family of wolves. Kipling made the jungle seem like a complete political and social world. He also gave each animal a characteristic way of thinking and acting. Mowgli's presence and his human intelligence disturbed the animal society, and a number of years later he returns to live among human beings. The *Just So Stories* answer with whimsical logic such questions as how the leopard got its spots and how the elephant got its trunk.

Kipling also wrote two popular novels with boys as the heroes. *Captains Courageous* (1897) tells of a teenager's adventures in America on a New England fishing boat. *Kim* (1901) is an adventure story about an orphan boy whose Irish parents had died in India. The novel presents a vivid picture of Indian society.

By the early 1900's, Kipling had started to write about people strictly according to their loyalty and usefulness to the British. He went to South Africa to report the Anglo-Boer War (1899-1902), in which the British won control of two African republics. The stories published in a collection called *Traffics and Discoveries* (1904), which he wrote after returning from South Africa, show little of his former humanity.

Kipling became increasingly unpopular because many people began to oppose colonialism. Kipling's reputation among critics began to decline after about 1910. Today, however, critics generally agree that Kipling was a great writer who contributed several important works to literature.

**Kirchhoff, Gustav.** See *Astronomy* (History: The development of spectral analysis).

**Kirghiz.** See *Kyrgyzstan*.

**Kiribati** is a small country made up of 33 islands in the central Pacific Ocean. It consists of three island groups: the 16 Gilbert Islands and Banaba (formerly called Ocean Island), the 8 Phoenix Islands, and 8 of the Line Islands. These islands lie on either side of the Equator, and spread across about 5 million square kilometres of the Pacific Ocean.

Kiribati has a total land area of 726 square kilometres. One island, Kiritimati Atoll, covers more than half of this

area. Kiribati has a population of about 81,000. Over 90 per cent of the people live in the Gilbert Islands. Tarawa, an island in the Gilberts, is Kiribati's capital.

The United Kingdom (UK) ruled much of what is now Kiribati from 1892 to 1979, when Kiribati became an independent nation. The country's basic unit of currency is the Australian dollar. Its national anthem is "Teirake Kain Kiribati" ("Stand, Kiribati"). For a picture of Kiribati's flag, see *Flag* (Flags of Asia and the Pacific).

**Government.** Kiribati is a republic headed by a president. The president is elected to a four-year term by the people from among candidates nominated by the Parliament. The Parliament, the nation's lawmaking body, consists of 36 members elected by the people to four-year terms; the country's attorney general; and an appointed representative of Banaba. Seventeen local councils administer local island government affairs. *Unimane* (councils of elders) handle local village matters.

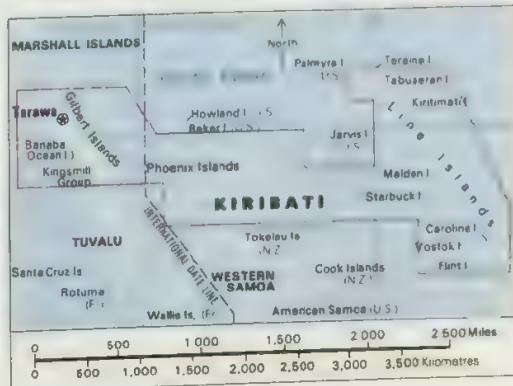
**People.** Most of the people of Kiribati are Micronesians. The islanders call themselves *I-Kiribati*. Most of them live in rural villages of a few to more than 100 dwellings clustered around a church and a *maneaba* (meeting house). Many of the dwellings are made of wood and leaves of coconut trees. Cement block houses with iron roofs are becoming more common.

The I-Kiribati are dependent on the sea. Fishing and the making and sailing of canoes form an important part of their life. The islanders grow most of their own food, which includes bananas, breadfruit, papaya, pandanus fruit, sweet potatoes, and *babal* (giant taro). They also raise pigs and chickens. On Tarawa, people rely more on imported foods. The islanders used to wear soft, finely woven mats but now wear light cotton clothing.

The language of the islanders is Gilbertese. But most of them also speak some English, which is used in official communications. Kiribati has about 100 primary schools and several secondary schools.

## Kiribati

- International boundary
- - - International date line
- ⊕ National capital







The people of Kiribati grow most of their own food. Many produce tomatoes to sell to oceangoing ships that dock there.

**Land and climate.** Almost all the islands of Kiribati are coral reefs. Many are *atolls* (ring-shaped reefs that enclose a lagoon). Kiribati has a tropical climate, with temperatures of about 27 °C all year round. The northern islands receive about 300 centimetres of rain annually. The other islands have a yearly rainfall of about 100 centimetres.

**Economy.** Kiribati is a developing nation. Its only important export is *copra* (dried coconut meat). Most of the nation's commerce goes through Tarawa, which has docks and an international airport. Tarawa also has an *earth station*, which transmits and receives international communications through a satellite in space. Kiribati's government runs a radio station and publishes a weekly newspaper, both in Gilbertese and English.

**History.** No one knows the origins of the I-Kiribati. The islands are believed to have been inhabited when Samoans settled there between the 1000's and the 1300's. There is evidence that the I-Kiribati lived there long before the Samoans. In the 1500's, Spanish explorers became the first Europeans to sight the islands.

In 1892, Britain took control of the Gilbert Islands and the neighbouring Ellice Islands to the south. It gained control of Ocean Island in 1900. In 1916, the British made these islands the Gilbert and Ellice Islands Colony. Some of the Line Islands, and the Phoenix Islands, were later added to the colony.

During World War II (1939-1945), Japanese troops occupied several of the islands. The United States Marines invaded Tarawa in 1943 and defeated the Japanese in one of the bloodiest battles of the war.

The Ellice Islands separated from the colony in 1975 and became the independent nation of Tuvalu in 1978. The remaining islands in the former Gilbert and Ellice Islands Colony gained independence as Kiribati on July 12, 1979.

See also Gilbert Islands; Kiritimati Atoll; Line Islands; Tarawa; World War II (Island hopping in the Central Pacific; picture: Hugging the ground).

**Kirilenko, Andrei Pavlovich** (1906-1990), was an official of the Communist Party of the Soviet Union. In

1956, he became a member of the Central Committee of the party. In 1962, he was made a member of the Politburo, the policymaking body of the Communist Party. In 1966, he was appointed to the Secretariat of the party's Central Committee. In 1982, Kirilenko resigned from the Politburo and the Secretariat. He remained a member of the Central Committee.

Kirilenko was born in Alekseevka, near Voronezh, in what is now Ukraine. He became a member of the Communist Party in 1931. After graduating from an aviation institute in 1936, he worked as an aircraft design engineer. During World War II (1939-1945), Kirilenko served as special representative of the State Committee for Defence at a Moscow aircraft factory.

**Kiritimati Atoll**, also called Christmas Island, is one of the largest islands formed by coral in the Pacific Ocean. About 1,300 people live on Kiritimati Atoll. The people who live on the island speak a language called Gilbertese. *Kiritimati* is the Gilbertese spelling of the word *Christmas*.

Kiritimati Atoll lies about 2,100 kilometres south of Honolulu. The island has a coastline of 130 kilometres, and covers about 360 square kilometres. It is low, dry, and sandy. The British used the island as a nuclear test site from 1957 until late 1962. In 1962, the United States held nuclear tests there.

On Christmas Day, 1777, the British explorer James Cook became the first European to reach the island. The island was annexed by Great Britain in 1888, and became part of the Gilbert and Ellice Islands colony in 1919. American forces built an airfield on Kiritimati Atoll during World War II (1939-1945). In 1979, Kiritimati Atoll became part of the independent nation of Kiribati (see Kiribati).

See also Line Islands; Pacific Islands (map).

**Kirk** is the word for *church* in Scots and in some dialects of northern England. The word *Kirk* was the official title of the Church of Scotland until the Westminster Assembly (1645-1648).

The phrase *the Kirk* is still popularly used, in Scotland and elsewhere, to refer to the Church of Scotland, and to distinguish it from the Church of England and the Episcopal Church of Scotland.

See also Church of Scotland.

**Kirk, Norman Eric** (1923-1974), was prime minister of New Zealand from 1972 until his death. A Labour Party leader, Kirk was born and educated at Christchurch. He later became an engine driver, a fitter and turner, and a ferryboat engineer. From 1953 to 1957, he was mayor of Kaiapoi, near Christchurch. When he was elected, at the age of 30, he was New Zealand's youngest mayor. In 1957, Kirk became a member of Parliament. There, he gained a reputation as a skilful speaker in debates. In the 1960's, he became a leading figure in the party. In 1965, he became leader of his party in Parliament. In 1973, he opposed nuclear weapons testing in the Pacific.

**Kirkby.** See Knowsley.



Kiritimati Atoll

**Kirkcaldy** (pop. 144,574) is a local government district in Fife Region, Scotland. Most of the area is urban in character. The district's long-established coal and linoleum industries are no longer dominant. Other industries have developed, particularly in the new town of Glenrothes, now a major centre of the electronics industry. Methil has a yard that builds drilling platforms for the oil industry.

The coast of Kirkcaldy is a popular tourist area, with centres at Burntisland, Kinghorn, and Leven. Kirkcaldy is also the name of the district's largest town, which includes a port. Other ports are Burntisland and Methil. Glenrothes has a small airport. Kirkcaldy town was once known as the *Lang Toun* because its main street runs for nearly 6 kilometres along the coast.

See also Fife Region.

**Kirkcudbrightshire** was, until 1975, a county in southern Scotland. See Dumfries and Galloway Region; Stewartry.

**Kirkland, Lane** (1922- ), became president of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) in 1979. Most trade unions in the United States belong to the AFL-CIO. Kirkland succeeded George Meany, who retired after serving nearly 25 years as president.

One of Kirkland's first goals as AFL-CIO president was to persuade nonmember unions to join the federation. Major unions that did not belong included the Teamsters Union, which had been expelled in 1957, and the United Automobile Workers (UAW). In 1981, the UAW joined the federation. The Teamsters were readmitted in 1987.

Joseph Lane Kirkland was born in Camden, South Carolina. He graduated from the U.S. Merchant Marine Academy in 1942 and served in the Merchant Marine until 1946. He graduated from the Georgetown University School of Foreign Service, Washington D.C., in 1948 and became a researcher with the AFL. In 1961, he became George Meany's executive assistant. From 1969 to 1979, Kirkland served as secretary-treasurer of the AFL-CIO.

**Kirklees** (pop. 367,600) is a local government metropolitan district in the county of West Yorkshire, England. Huddersfield is the administrative centre of the district. The textile industry is firmly established in the area. Other important industries include engineering and chemicals, and food processing.

Part of the Peak District National Park is included within the district boundary. The area has a strong tradition of music, with brass bands and choral societies among the activities followed.

See also Yorkshire.

**Kirlian photography** is the process of creating an image of an object by exposing the object to an electromagnetic field. The process is also known as *electromagnetic discharge imaging* (EDI). Objects thus photographed appear surrounded by discharges of light. The images may be captured with ordinary photographic methods or by more sophisticated techniques.

Some scientists once suggested that the images seen in Kirlian photographs resulted from the *aura* or *bioplasma*, a theoretical energy field said to surround living things. Today, the following process is known to be responsible for Kirlian images: The electromagnetic field



A Kirlian photograph shows discharges of light surrounding an object. In this Kirlian photograph of a human hand, the discharges appear as white and purple bands of light.

causes gas molecules surrounding an object to accelerate and become *ionized* (electrically charged). It also frees and accelerates electrons and positive ions from the object's surface. The charged particles collide with neutral molecules and atoms, creating more electrons and ions. After a sufficient amount of positive ions has built up, the electrons and ions recombine. The recombination emits red, violet, and ultraviolet light. These emissions show up as discharges of light in the photographs.

Kirlian photography can be used to monitor changes in the ions in living tissue. Some scientists believe that such changes indicate physical or psychological changes in the organism. Researchers also have used Kirlian techniques to detect and measure damaged regions in solid materials. But many factors may affect the quality of a Kirlian image, including the temperature and moisture of the object and the surrounding gas.

The photographing of objects exposed to an electric field began in the 1890's. The process was named after the Soviet scientists Semyon and Valentina Kirlian, who began to systematize the technique about 1940.

**Kirstenbosch** is the site of South Africa's National Botanic Gardens. It is located on the eastern slopes of Table Mountain in Cape Town. Kirstenbosch covers about 560 hectares. But only 7 per cent of the gardens have been developed. The rest remains untouched.

Kirstenbosch is known for *fynbos*, a distinctive group of local shrubs. They include the *protea*, which is South Africa's national flower. See Fynbos; Protea.

More than 4,700 types of plants grow in the gardens. They also house collections of more than 300,000 dried plants.

The gardens were established on land left to the nation in the will of diamond magnate and politician Cecil Rhodes in 1902. Kirstenbosch was proclaimed as a botanic garden in 1913.

**Kiss of life.** See First aid (Giving artificial respiration).

**Kissinger, Henry Alfred** (1923- ), a distinguished American statesman, served as U.S. secretary of state from 1973 to 1977. He was appointed by President Richard M. Nixon and kept the post after Gerald R. Ford became president in 1974. Kissinger also served as assistant to the president for national security affairs from



1969 to 1975. He was the most influential foreign policy adviser of both presidents.

Between 1969 and 1973, Kissinger conducted secret negotiations with North Vietnamese diplomats in an effort to end the Vietnam War. The negotiations led to a cease-fire agreement signed in January 1973 by the United States, North Vietnam, South Vietnam, and the Viet Cong. Kissinger and Le Duc Tho, the chief North Vietnamese negotiator, won the 1973 Nobel Peace Prize for negotiating the cease-fire. But fighting went on until the war ended in 1975.

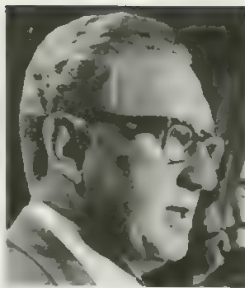
Kissinger also carried out other missions for Nixon. In 1971, he went to China to arrange Nixon's 1972 visit. He also went to Moscow in 1972 to prepare Nixon's meeting with Soviet leaders. In 1974, Kissinger helped to arrange agreements to separate the fighting forces of Israel from those of Egypt and Syria. These nations were involved in the 1973 Arab-Israeli War. In 1983, President Ronald Reagan appointed Kissinger head of a federal commission set up to develop U.S. policy on Central America.

Kissinger was born in Fürth, Germany. His family moved to the United States in 1938 to escape Nazi persecution of Jews. Kissinger served in the U.S. Army during World War II (1939-1945). He became a U.S. citizen in 1943. Kissinger obtained three degrees at Harvard University, and taught courses there on international relations. His many writings on U.S. foreign policy include *Nuclear Weapons and Foreign Policy* (1957). Kissinger has published two volumes of memoirs, *White House Years* (1979) and *Years of Upheaval* (1982).

**Kit-Cat Club** was a political and literary club in London in the early 1700s. The club was named after Christopher Cat, in whose tavern the club met. The club served mutton pies that were called *kit-cats*. Each member donated his portrait, which was less than full-length because the ceiling of the club's dining room was so low. Many of these portraits were painted by Sir Godfrey Kneller (see *Kneller, Sir Godfrey*). Such shortened portraits are still called *kit-cats*.

**Kitasato, Shibasaburo** (1852-1931), was a Japanese bacteriologist famous for his experiments with diphtheria and tetanus antitoxins. In 1889, he produced the first pure culture of the tetanus germ, which is used to make tetanus vaccine. One of the discoverers of the bubonic plague germ, he developed a serum that helped prevent epidemics. Kitasato was born in Kumamoto, Japan.

**Kitchen midden** is a mound of shellfish and other rubbish left behind by early inhabitants of an archaeological site. Such mounds were the refuse piles of camps and villages where people lived long ago. Some of them date back thousands of years. Kitchen middens contain tools made of bones and stone, shells of the shellfish used for food, sometimes bits of pottery, and bones of animals and sometimes of human beings. Archaeologists who study kitchen middens can recon-



Henry Kissinger

struct the daily life and changing customs of people who lived before history was written.

Scientists first studied this kind of mound in Denmark. The term *kitchen midden* comes from Danish words which mean *kitchen leavings*. People have also studied kitchen middens in other parts of Europe and in Africa, Australia, and New Zealand. American Indians left many mounds in North America.

**Kitchener, Horatio Herbert** (1850-1916), was a distinguished British soldier. Early in his career, he served in Palestine, Cyprus, and Egypt. As governor general of the Sudan and then commander of the Egyptian Army, he put new spirit into the army and broke the power of the dervishes, a fanatic religious group. In 1898, Kitchener reoccupied Khartoum for the British (see *Sudan*).

Kitchener went to South Africa in 1899 as second in command to General Frederick Sleigh Roberts in the Anglo-Boer War (1899-1902). When Roberts returned to England, Kitchener became commander of the South African army. After difficult guerrilla warfare, he ended the war successfully (see *Anglo-Boer War*). Then he was appointed as commander in chief of the army in India and later advised the Australian and New Zealand governments on army reforms. From 1911 to 1914, Kitchener served as head of the British administration in Egypt, and in June 1914 he was made earl of Khartoum and of Broome.

Kitchener's wide experience and great reputation led to his appointment in 1914, at the beginning of World War I, as secretary of state for war. He foresaw a long war and raised a large British army, an important factor in the eventual success of the Allies. He was drowned in 1916 when a ship he was on hit a mine. Kitchener was born in County Kerry, Ireland. He was educated at the Royal Military Academy at Woolwich, London.

**Kite** is a type of bird that preys on *carrion* (dead animals) and on small animals. There are about 20 species of kites. They live on all the continents of the world and on the large islands in the southwestern Pacific. Kites have small heads, long, narrow wings, and forked tails. They are graceful gliders.



The Everglade kite has a small hooked bill that it uses to prise snails out of their shells



The black kite, which lives in Europe, shows the forked tail that is typical of all species of kites.

The red kite lives in Europe, North Africa, and the Middle East. It is mainly a *scavenger*, feeding on dead or injured animals. It used to help clean the streets of London in the 1500s. In Britain today, it is found only in Wales, although attempts are being made to reintroduce it to Scotland. The black kite lives in central and southern Europe, Africa, and Asia. It is also a scavenger found around many cities. Red and black kites are about 55 centimetres long.

The Brahminy kite is another scavenging bird, found from India to Australia. The black-breasted buzzard kite of Australia feeds mainly on lizards and rabbits. The Everglade kite has a sickle-shaped bill used for prising out snails from their shells. It lives in Florida, in the U.S.A., and in Central and South America. Most kites build nests on tall trees and lay two to five eggs.

**Scientific classification.** Kites are in the hawk family Accipitridae. The red kite is *Milvus milvus*, the black kite is *M. migrans*, the Brahminy kite is *Haliastur indus*, the black-breasted buzzard kite is *Hamirostra melanosternon*, and the Everglade kite is *Rosthamus sociabilis*.

See also Hawk.

**Kite** is an object that is flown in the air at the end of a line. The name comes from a graceful, soaring bird called a kite. Most kites consist of material such as paper or cloth mounted on a frame made of sticks, to which a line is attached. However, many kite builders use lighter, more durable synthetic coverings, such as plastics or nylon. They also use fibreglass or aluminium instead of wood for the frame, and nylon or polyester instead of cotton for the line. Kites can be made in hundreds of sizes, shapes, and colours.

Most kites today are flown for recreational purposes.

For example, in Hamamatsu, Japan, people fly brightly painted kites taller than adult human beings in a festival over 400 years old. Kites have also been used for scientific research and for military purposes. Kites carrying measuring devices helped develop the science of weather forecasting in the 1800s. During World War II (1939-1945), life rafts had box kites equipped with radio aerials which sent out S O S signals (see S O S).

### How kites fly

A kite's ability to fly in the wind depends on its construction and the way its line is attached. For example, the well-known diamond-shaped kite flies when its covered side is facing the wind. The line should pull the nose of the kite into the wind, creating the necessary angle against the wind, called the *angle of attack*. If the kite's construction and angle of attack are correct, the kite will strike the air with greater pressure against its face than against its back. The difference in air pressure between the face and back surfaces creates *lift*, the force that makes the kite rise. The resistance of the air to the forward motion of the kite is called *drag*. The forces of lift, drag, line tension, and gravity combine to keep the kite in the air.

A kite flies from its *bridle*. The bridle consists of two or more lines, called *legs*, that attach the kite to the flying line. The attachment position, called the *towing point*, is important because it sets the kite's angle of attack. The bridle also distributes stresses on the kite to help the kite keep its shape and fly. A kite must be headed up and into the wind. It can maintain this position in several ways, such as through a tail, a rudder, a keel, tassels, vents, or combinations of these.

### Types of kites

There are hundreds of different types of kites. The most basic types include (1) flat kites, (2) bowed kites, (3) box kites, (4) delta kites, and (5) flexible kites. Many kites combine design elements from two or more types.

**The flat kite** is the oldest basic type of kite. All flat kites need tails to supply drag and keep the kite pointed upward. A simple tail consists of cloth strips tied end to end. Strips can be added or removed. The more wind there is, the more tail a kite needs. A kite should begin with a tail at least seven times its diagonal length.

**The bowed kite** is curved on its face to create an angle into the wind, called the *dihedral angle*. This angle provides stability without the need for a tail. A favourite bowed kite is the two-stick diamond-shaped kite patented in 1891 by an American named William A. Eddy. In India and other countries, a type of kite that becomes bowed in the wind is used in the sport of *kite fighting*. Participants in the sport attach glass-coated lines to their kites and manoeuvre them in attempts to cut down opponent kites.

**The box kite** consists of three-dimensional units whose sides are squares, rectangles, or triangles. The units can be combined in countless ways. Most box kites require strong, steady winds to fly. When several box kites are flown together on one line or in a train, the pull can lift a person off the ground. The box kite was invented by Lawrence Hargrave of Australia in 1893.

**The delta kite** is triangular. Most delta kites have a flap of material, called a keel, which is perpendicular to



the triangular surface. The keel works as a bridle and attaches to the flying line. Delta kites are easy to build, and readily fly in light winds.

Hang gliders developed from the first delta kite, called the Flexikite, invented by Francis M. Rogallo for the United States space programme in 1941. See *Glider* (Hang gliding).

**The flexible kite** is sewn or taped together in a design that takes its shape from the wind. An example is the Parafoil, which is similar to a parachute and consists entirely of fabric. It has no rigid frame. A complicated bridle with many legs attaches the Parafoil to the flying line. The flexible kite was invented by Domina C. Jalbert of the United States in 1963.

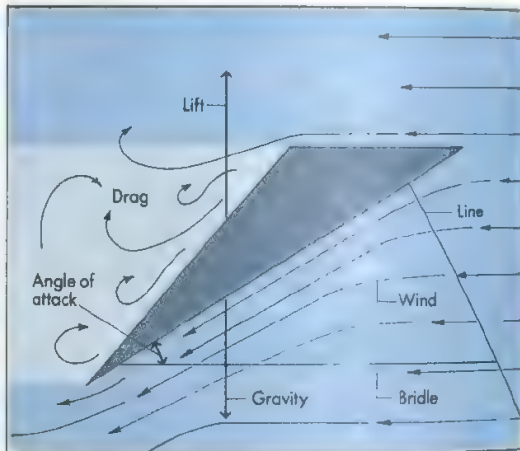
### Flying a kite

Kites should be flown in open, unobstructed spaces such as parks, farm fields, and beaches. Kites should not be flown on public streets, in areas where kites would interfere with aeroplane traffic, on bumpy or rocky land, or near trees. In some countries, there are height and distance restrictions on flying kites. For example, in the United Kingdom, kites must not be flown above 60 metres. Another restriction is that they must not be flown within 5 kilometres of an airfield.

Kite fliers should follow several safety rules. Never fly kites in stormy or wet weather because static electricity can travel down the kite line and injure—or even kill—the person holding the kite line. Never fly a kite near electric lines or antennas, or use any metal in the line. By wearing gloves, kite fliers may prevent *line burn*,

### How kites fly

The forces of lift, drag, and gravity combine to keep a kite in the air. The kite must be flown in such a way that its angle against the wind, called the *angle of attack*, provides maximum lift to overcome both drag and gravity. The angle of attack can be controlled by one or more short lines called *bridles*.



which is caused by the kite cord pulling too quickly through the fingers.

Before flying a kite, make sure that the kite has been properly assembled. Also, take along extra supplies, such as tail materials, line, and a winder for the line.

Some kites need only a light breeze of 5 or 6 kilometres per hour to fly. Others require wind speeds of more than 16 kilometres per hour. Judge the wind from the movement of tree branches. A wind speed of 40 kilometres per hour is too strong for most kites.

Two people—a launcher and a flier—provide the easiest way to fly a kite. The launcher walks the kite away from the flier at least 15 metres. The wind should be at the flier's back and in the launcher's face. After pulling the line so there is no slack, the flier signals to the launcher to release the kite. If everything is correct, the kite will rise easily into the sky. The flier should keep tension on the line and allow the line to feed out smoothly.

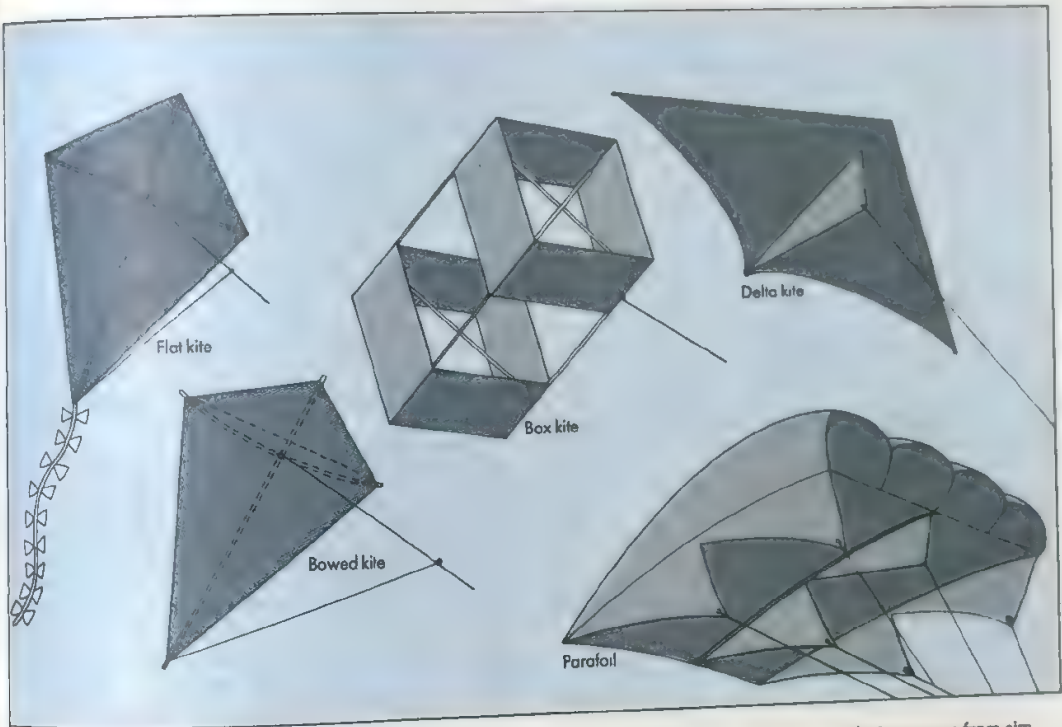
If the wind drops, repeated hauling on the line will force the kite up into higher breezes, which are usually steadier. The flier need not run with the kite if there is enough wind. If the kite begins to tumble, the flier should slacken the line. This helps the kite regain stability and prevents it from diving and crashing to the ground. When ready to bring the kite in, the flier should walk to the kite while pulling the line in, and then wrap the line on the winder.

### History

Kites are the oldest form of aircraft. They probably originated in China about 3,000 years ago. During the Han Dynasty (200 B.C. to A.D. 200), the Chinese military attached bamboo pipes to the kites. As the kites flew over the enemy, wind passed through the pipes, causing a whistling sound. The noise caused the troops to panic and flee.



Kites come in a wide range of sizes, shapes, and colours. A kite-flying festival in Hamamatsu, Japan, above, features brightly painted kites that are taller than adult human beings.



### Types of kites

Most kites have a frame construction covered with some type of fabric. The designs range from simple, roughly triangular flat kites to more complex, multisided box kites. Flexible kites, such as the parafoil, take their shape chiefly from the wind.

The practice of kite flying spread from China, through Asia, and as far as New Zealand. European forms of kites developed in the Middle Ages. One form developed from a military standard. It had a sack-shaped body, which caught the wind. A later form of European kite was diamond shaped. It came into use in the 1500's, and became the most widely used form of kite in Europe.

In 1752, Benjamin Franklin, American statesman and scientist, conducted the most famous kite experiment in history. Franklin flew a homemade kite during a thunderstorm, attaching a metal key to the kite string. He wanted to prove that natural lightning is electricity. A bolt of lightning struck a pointed wire fastened to the key, and travelled down the wetted string to the key, causing a spark. The spark proved Franklin's theory.

In 1847, a kite helped to pull a cable across the Niagara River between the United States and Canada. The cable was part of the river's first suspension bridge.

Kites played an important role in the development of the aeroplane. Lawrence Hargrave's box kite changed the way people designed flying objects. Orville and Wilbur Wright used box kites as a basis for testing their ideas about wing warping. The results enabled the Wrights to make the first aeroplane in 1903. See **Wright brothers**.

Alexander Graham Bell, the inventor of the telephone, also created kites. He hoped they would lead to aircraft that would carry people. He used *tetrahedral* (four-faced) box kites that could be combined in large forms for lifting human beings.

Kites have been used to measure the weather. In the 1800's and early 1900's, meteorologists operated kite stations that flew box kites equipped with weather-measuring devices.

Today, kites are used less often for military or scientific purposes. However, since the 1970's, there has been a growth of interest in kites as a pastime.

**Kiting** is a recognized all-year-round sport. Some people fly kites on two lines in precision acrobatics. Kites are also exhibited in museums as works of art. Kite lovers have established clubs and festivals in many parts of the world. Several books and newsletters have been published to provide information about kites and kite flying.

**Kitt Peak National Observatory.** See **National Optical Astronomy Observatories**.

**Klitten.** See **Cat** (The life of a cat); **Rabbit** (The life of a rabbit [Young]).

**Kittinger, Joseph W., Jr.** See **Balloon** (Manned explorations; Sport ballooning today).

**Kittiwake** is a gull that gets its name from its mournful cry. The *common kittiwake* lives in the Arctic regions of Europe, Asia, and North America. The *red-legged kittiwake* nests on islands near Alaska in the Bering Sea.

Adult kittiwakes measure from 40 to 45 centimetres long. They are white with a bluish-grey back and black-tipped, bluish-grey wings. They have a yellow beak.

Kittiwakes make neat, cup-shaped nests by binding together seaweed or other vegetation with their droppings. Large numbers of the birds build nests close to-





The common kittiwake is a gull that lives in the Arctic. It builds a cup-shaped nest on a rocky ledge.

gether on rocky ledges. Females lay two or three spotted eggs. Outside the breeding season, kittiwakes live far out at sea. They feed on small fish, squid, and crustaceans taken from the surface of the sea.

**Scientific classification.** Kittiwakes belong to the gull and tern family, *Laridae*. The common kittiwake is *Rissa tridactyla*. The red-legged kittiwake is *R. brevirostris*.

**Kitty Hawk**, North Carolina, U.S.A. See **Aeroplane** (The Wright brothers); **Wright brothers**.

**Kiwanis International** is an international organization of local clubs of men and women who are interested in community service. There are Kiwanis clubs in 80 nations throughout the world.

Kiwanis serves a community in many ways. For example, members of the club support community projects, ranging from facilities for the young and elderly to alcohol and drug abuse programmes. Kiwanis members also support conservation and take part in community drives, including safety and fund-raising campaigns. Kiwanians also are active in public affairs and work to promote international understanding and good will. Members give career guidance and sponsor youth activities. An international meeting is held every year.

Kiwanis was founded in Detroit, Michigan, United States, in 1915. The name *Kiwanis* comes from an old American Indian term meaning *We make ourselves known*.

**Kiwi** is the name of four species of New Zealand birds that cannot fly. They are related to other flightless birds, including moas, ostriches, emus, cassowaries, and rheas. But the exact evolutionary relationship between kiwis and other flightless birds is not clear. Their name comes from the Maori word *kiwi-kiwi*, which refers to the whistling call, *kee-wee*, of the males.

**Description.** The four species of kiwis are the *brown kiwi*, *little spotted kiwi*, *great spotted kiwi*, and *tokoeka*. Brown kiwis and tokoekas weigh from 1 to 3 kilograms. Brown kiwis, great spotted kiwis, and tokoekas are 45 to 55 centimetres in length. Little spotted kiwis weigh from

1 to 1.25 kilograms and are 35 to 45 centimetres in length. The females in all species are slightly larger than the males. Brown kiwis and tokoekas are brown with light streaks, and spotted kiwis are greyish-brown with white spots. Kiwis have long, flexible bills. They have slit like nostrils at the very tips of their bills. The long, hair like feathers or bristles at the base of the bill probably help the bird find its way about at night. Kiwis have small, dark eyes and do not see well. They use their senses of smell and hearing to find food. Kiwis have no tails. Their body feathers hide their small, useless wings.

**Distribution.** Brown kiwis live on the North Island and in Okanto on the South Island. Brown kiwis are the only kiwis found on the North Island. Tokoekas, only recently recognized as a separate species from brown kiwis, live farther to the south, at Haast and in Fiordland, both on the South Island, and on Stewart Island.

Kiwis are found in all forest areas, but settlement and the cutting down of the bush have reduced their range. In recent years, brown kiwis on the North Island have adapted to regrowth areas and rough farmland.

Kiwis are now at risk of becoming extinct, as they are easy prey for a number of animals which have been introduced to New Zealand since European settlement. Stray dogs chase and kill the kiwi. The bush-tailed possum, another serious threat, raids the kiwi's nesting burrows to eat their eggs.

**Habits.** Kiwis come out only at night on the main islands, so few New Zealanders have ever seen a kiwi, except in zoos. Their calls can sometimes be heard in the bush, but the birds usually spend the day sheltering in a burrow. On Stewart Island, however, they may be seen feeding during the day. Kiwis can run swiftly. They defend themselves by kicking violently with their claws.

**Food.** Kiwis search for food by probing with their long, flexible bills into rotten logs, moss, and bare ground for worms and insects. They also eat berries. When probing for worms, the kiwi thrusts its bill into the ground, usually to its base. The worm is carefully withdrawn and swallowed whole.



**Kiwis** live in areas of thick New Zealand native bush. They usually come out to feed at night.

Breeding takes place from July to February. The kiwi makes its nest of sticks and lines it with leaves in a natural hollow or one excavated in a bank or under a log. The eggs have a glazed surface and are white to greenish-white. They can weigh up to 450 grams. Kiwi eggs are the largest laid by any bird of similar size.

**Scientific classification.** Kiwis belong to the kiwi family Apterygidae. The brown kiwi is *Apteryx australis*. The little spotted kiwi is *A. owenii*. The great spotted kiwi is *A. haastii*.



The flowers and fruit of the kiwi vine

**Kiwi fruit** is a berry with a brown, fuzzy skin and is similar in size and shape to an egg. Kiwi fruit has an emerald-green pulp surrounding a cluster of soft, black seeds. The pulp of the kiwi fruit has a pleasant, mixed-fruit flavour and is rich in vitamin C. People eat kiwi fruit fresh, frozen, or canned and use it to make fruit salads, pies, ice cream, and wine. Kiwi fruit is named after a New Zealand bird called the kiwi, which it resembles.

Kiwi fruit grows on vines. The plants do best in a mild climate. New Zealand ranks as the leading producer of kiwi fruit, followed in order by France, the United States, Italy, Spain, and Japan.

Kiwi fruit is native to southeastern China and is also known as the *Chinese gooseberry*. Cultivation of the fruit spread to other parts of the world during the early 1900s. The plant is also grown as an ornamental climbing plant. It has dark green, heart-shaped leaves.

**Scientific classification.** Kiwi fruit belongs to the family Actinidiaceae. Its scientific name is *Actinidia chinensis*.

**Kjolen Mountains.** See Norway (The land); Sweden (The land).

**Klaipėda** (pop. 191,000) is the third largest city in Lithuania. Only Vilnius and Kaunas have more people. Klaipėda was formerly called *Memel*. It lies in western Lithuania on the Baltic Sea coast. For location, see Lithuania (map). The city serves as a seaport and industrial centre. Its economic activities include fishing, food processing, shipping, shipbuilding, and textile production.

German knights founded Klaipėda in 1252. Germany then ruled the community until the end of World War I in 1918. In 1923, the city became part of independent Lithuania. Germans took control of Klaipėda in 1939. The Soviet Union forcibly made Lithuania a Soviet republic in 1940. In 1945, Soviet troops seized Klaipėda and returned it to Lithuania. In 1991, Lithuania broke away from

the Soviet Union and became an independent nation again.

**Klee, Paul** (1879-1940) ranks among the greatest and most original masters of modern painting. Klee's paintings, drawings, and prints are masterpieces of fantasy, wit, and invention. His pictures are usually small and filled with childlike symbols and writing that hint at a mysterious inner vision of the world and its inhabitants. A typical painting, *Red Balloon*, appears in the Painting article. Klee worked in many media other than oil, including watercolour, ink, and graphite.

Klee was born near Bern, Switzerland, but established himself as an artist after moving to Germany. He became the friend of painters Wassily Kandinsky and Franz Marc and exhibited with their *Der Blaue Reiter* (The Blue Rider) group just before World War I (1914-1918). Klee taught at the Bauhaus school of design from 1920 to 1929. He left Germany in 1933 when the Nazis gained power. He moved to Switzerland and spent the rest of his life there. Some of his ideas on art have been published as the *Pedagogical Sketchbook*.

**Kleist, Heinrich von** (1777-1811) was a German writer. His plays and stories often deal with trust and faith between people. His characters often suffer from confused feelings and find themselves in violent or desperate situations.

Kleist's short novel *Michael Kohlhaas* (1808) is a story of extreme personal rebellion against public injustice. His best plays include the romantic *Azothchen von Heilbronn* (1810) and the historical drama *Prince Friedrich von Homburg* (1809-1811). *The Broken Jug* (1808) is one of the few lasting comedies in German drama.

Kleist was born in Frankfurt an der Oder. He served as an officer in the Prussian Army, but became dissatisfied with military life and resigned in 1799. Finally, overcome by inner torment, Kleist shot and killed a woman friend and himself at the age of 34.

**Klemperer, Otto** (1885-1973), was a famous conductor of opera and of symphony orchestras. He became noted for his scholarly knowledge of music.

Klemperer was born in Breslau, Germany (now Wrocław, Poland). The composer and conductor Gustav Mahler played a large role in determining Klemperer's approach to conducting. In 1907, on the recommendation of Mahler, he was made conductor of the German National Theatre in Prague. In 1927, Klemperer became director of the Kroll Opera in Berlin. In the United States, he led the Los Angeles Philharmonic Orchestra from 1933 to 1939. After World War II ended in 1945, Klemperer became a leading conductor in England.

**Kleptomania** is a recurrent failure to resist the impulse to steal things. Kleptomaniacs steal things they do not need or cannot use. They do it without knowing why, and they do it habitually. Kleptomaniacs experience an increasing sense of tension before stealing things and feel relieved while or after committing the act.

Psychiatrists consider kleptomania a symptom of mental illness, and it may be associated with other psychiatric disorders. Kleptomania may result from unconscious wishes that vary from person to person. Some kleptomaniacs unconsciously wish to be caught and punished.

The word *kleptomania* comes from two Greek words which mean to *steal* and *madness*. It was coined during





Klimt's paintings are colourful and richly patterned. *The Kiss* (1908) is one of his most popular works.

the 1800's to describe what was then thought to be a form of insanity.

**Klimt, Gustav** (1862-1918), was an Austrian artist. He was the leading cofounder and first president of the Vienna Secession, a group of artists and architects who created the Austrian version of French art nouveau in painting and the decorative arts (see *Art nouveau*). Klimt is best known for his paintings of the human figure. Like other art nouveau artists, he painted in a flat, richly patterned, and colourful style that emphasized curving and rhythmic lines.

Klimt was born near Vienna. He began his career as a portrait artist and decorative painter. His murals *Philosophy*, *Medicine*, and *Jurisprudence* (1900-1907) for the University of Vienna created controversy because the figures were gloomy and sensual rather than heroic. His last major project was a grouping of mosaics (1911) in the Palais Stoclet in Brussels. The mosaics are composed of glass, semiprecious gems, gold, and enamel. Their human figures are almost lost in the brilliantly patterned abstract design.

**Kline, Franz** (1910-1962), was an American abstract expressionist artist noted for his large, starkly simple, black-and-white paintings. In these works, strong black forms seem to sweep across raw white surfaces with whirling speed. This style gave the impression of rapid brushwork. But it was usually produced only by the most painstaking work. Kline sometimes took months to finish a picture. His powerful compositions inspired many younger artists to experiment by using fewer colours and working with simple, giant symbols.

Kline was born in Wilkes-Barre, Pennsylvania. He moved to New York City in 1938 and first exhibited his black-and-white abstractions in 1950.

**Klondike** is a region in the Yukon Territory of north-western Canada, where one of the world's greatest gold

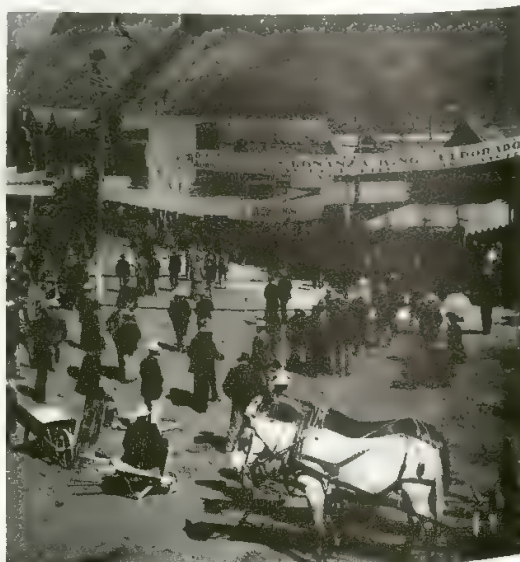


Location of the Klondike

rushes took place. The region covers about 2,070 square kilometres, including the Klondike River and its tributaries. See *Gold rush*; *Yukon Territory*.

On Aug. 17, 1896, George W. Carmack, his Indian wife Kate, and her relatives found a large quantity of gold in the gravel of a creek he named the Bonanza. Residents of the town of Dawson now celebrate this date as "Discovery Day," and it is a territorial holiday. An earlier prospector, Robert Henderson, had found some gold in Gold Bottom Creek, and had suggested that Carmack search for gold in the area.

When Carmack and the others recorded their claims at Forty Mile, a mining camp about 80 kilometres from Dawson, most of the miners there moved up to Bonanza Creek. News of the rich strike did not reach the outside world until July 1897, when the steamship *Portland* arrived in Seattle, Washington, with a load of gold from the region. The news spread around the world. It



The Klondike gold rush in the late 1890's drew many prospectors to the Yukon Territory. The town of Dawson sprang up and had about 25,000 residents at the peak of the gold rush.

brought a stampede of prospectors to the Klondike in the autumn of 1897, and an even greater one in 1898. But few of the men made fortunes. The good claims were staked before most prospectors arrived.

By 1928, 200 million U.S. dollars worth of gold had been produced in the region, mostly by individual placer (sediment containing gold) mines. Since then, dredges have produced millions of dollars worth of gold each year. Other minerals in the area include silver, lead, and zinc.

The Klondike winter lasts seven months. But long hours of summer sunshine produce good vegetable crops. The growing season rarely permits the ripening of grain crops, but allows hay farming.

**Knee** is the joint where the thighbone meets the large bone of the lower leg. The knee moves like a hinge, but it can also rotate and move a little from side to side. The knee is more likely to be damaged than most other joints because it is subject to tremendous forces during vigorous activity. Most of the knee injuries that occur in football and other sports result from twisting the joint.

The *patella* (kneecap) is a small, flat, triangular bone in front of the joint. It is not directly connected with any other bone. Muscle attachments hold it in place.

The *femur* (thighbone) and the *tibia* (large bone of the lower leg) are connected in three ways. These ways are (1) by *ligaments* (strong, cordlike tissues); (2) by muscles; and (3) by a *synovial capsule*. The synovial capsule surrounds the joint.

The knee ligaments are the strongest connections between the femur and the tibia. Ligaments keep the bones from moving out of position.

One group of muscles bends the knee and another group straightens it. Cords called *tendons* attach the muscles to the bones.

The synovial capsule secretes a liquid called *synovial fluid*, which resembles raw egg white. The synovial fluid nourishes the joint surfaces and reduces friction between them. If the synovial capsule is injured, it may produce too much fluid. This extra fluid is sometimes called "water on the knee."

Smooth tissue called *cartilage* covers the ends of the leg bone and thigh bone. This tissue helps the bones

slide easily over each other. And because cartilage is springy, it also acts as a cushion.

See also **Arthroscopy**; **Joint**; **Leg**.

**Kneller, Sir Godfrey** 1646-1723 was a German-born painter famed for his portraits of the monarchs of Europe and of the important people of his time. Critics consider his best works to be the series of over 40 portraits of the members of the Kit-Cat Club (see **Kit-Cat Club**).

Kneller was born at Lubeck, in Germany, and named Gottfried Kneller. He studied under Rembrandt's pupil Ferdinand Bol in Amsterdam, in the Netherlands, and then went to Rome for further study. Kneller settled in England in 1674 and became court painter to Charles II in 1680. He remained outside the political turmoils of his times, maintaining good relations with each of the monarchs under whom he lived. In 1711, he opened his Academy of Drawing and Painting. Kneller was knighted by William III in 1692 and created a baronet by George I in 1715.

**Knesset**. See **Israel (Government)**.

**Knickerbocker Group**. See **American literature** (New York and the Knickerbockers).

**Knife** is a cutting instrument used as an eating utensil, a tool, or a weapon. Knives consist chiefly of a handle and a blade. Knife blades are made from steel, and most handles are made from hardwood or plastic. Other handle materials include antlers and bones.

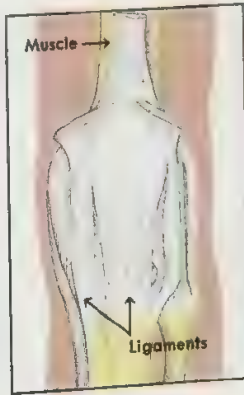
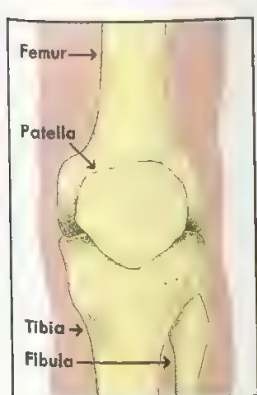
Knives serve a great variety of purposes. For example, surgeons use small, straight knives called *scalpels*. Many artists use flexible knives called *palette knives* to paint rugged lines and broad splashes of colour on their pictures. *Putty knives* and *filling knives* are often used in home repair.

People have used knives throughout history. Early human beings fashioned the first knives from flint and used them to skin animals and cut meat. Through the centuries, materials for making blades progressed to bronze, then iron, and finally steel. During the Middle Ages, many hunters used their knives for eating as well as for hunting. The round-ended table knife, which is in use today, probably began limited use in Europe during the 1400s.

There are two main categories of knives—*fixed-blade knives* and *folding knives*, also called *pocket knives*. Fixed-blade knives have a blade with a solid steel extension, called a *tang*, that fits into the handle. The handle is attached to the tang by such materials as glue and rivets. Some fixed-blade knives also have a *pommel* and a *hilt*. A pommel is a metallic cap on the end of the handle. A hilt is a guard where the handle meets the blade.

Folding knives have a blade that closes inside a split handle. A hinge pin secures the blade to the front of the handle. A spring holds the blade in the closed position, and a lock holds it open. Some folding knives have several blades hinged to both ends of the handle. Some also have other attachments, such as a corkscrew or a bottle opener.

**Types of knives**. There are many types of knives within the two main categories. Each type has a chief purpose that depends mostly on the design of its blade. Blades differ according to (1) their thickness, (2) their *depth* (the average distance from their top to their edge), and (3) the shape of their point.



The **knee** is the joint at which the thighbone meets the large bone of the lower leg, *left*. The kneecap protects the joint. Muscles bend and straighten the knee, and ligaments steady it, *right*.



The three characteristics of knife blades determine the function of a knife. For example, the kitchen knife has a blade designed to slice food evenly. It is thin and deep and gradually narrows to a point. Another kitchen utensil is the *boning knife*. Its very thin, shallow blade has a sharp point. The blade bends to cut meat from around bones. The boning knife is also called the *fillet knife*. Both the kitchen knife and the boning knife are fixed-blade knives.

Most table knives have fairly thick blades with rounded points. The blades are neither particularly deep nor shallow. They are designed for cutting soft foods and for spreading. Most table knives have the handle attached to the tang. However, some are made in a single piece.

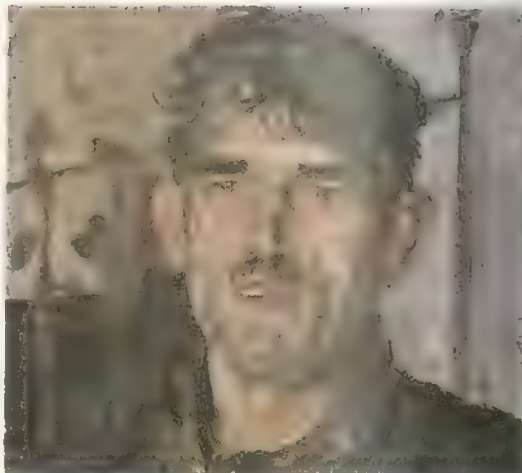
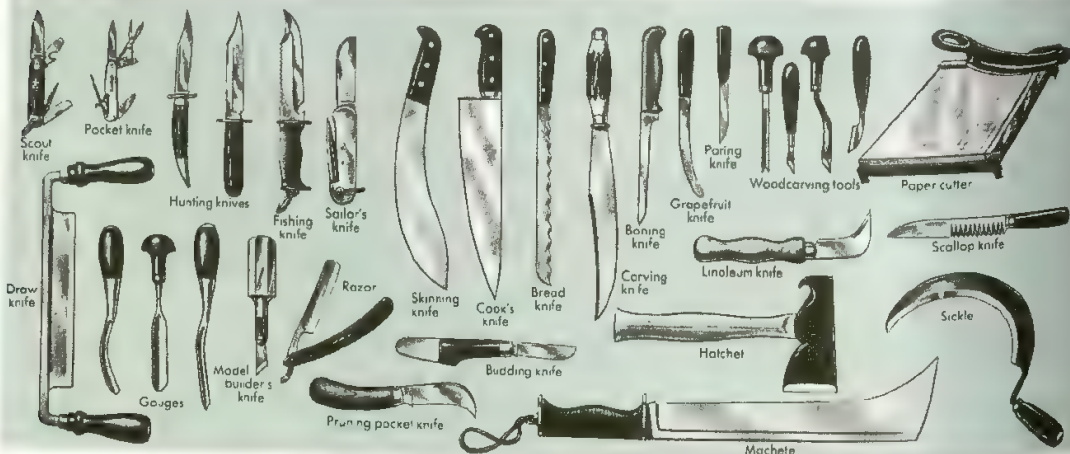
The *hunting knife* and the *stiletto* differ greatly from knives used as kitchen utensils. The hunting knife has a thick, deep blade that narrows slowly to a point. This sturdy knife is designed for many uses, including skinning an animal, slicing a potato for a camp stew, and functioning as a weapon. The stiletto is a weapon. Its thick, shallow blade and sharp point are well-suited for penetration. Both the stiletto and the hunting knife are fixed-blade knives.

The *Boy Scout knife* is a folding knife that has two blades. One blade is deep and thick, with a blunt point. It is used for cutting and whittling. The second blade is thin, shallow, and sharply pointed. It is used for delicate cutting.

**Knife safety.** Knives can be dangerous. Several rules of knife safety can lessen the danger if followed. Always aim the blade away from you when cutting. Always cut on a soft surface, such as a cutting board. Knives dig into soft surfaces and so will not slip dangerously. Always keep knives sharp. A dull knife often slips and cuts the person using it instead of the intended object. Never place loose knives in a drawer or a sink full of dishwater, where people may cut themselves on the knives accidentally. Also, the knives will rattle against each other and become dull. Therefore, always store knives in a sheath or in separate racks.

See also Bowie knife; Dagger; Machete.

## Kinds of knives



Tate Gallery, London

Dame Laura Knight's painting *The Gypsy* displays her lively style and deep insight into the character of her subject.

**Knight, Eric** (1897-1943), was a British author. He wrote many works of fiction for adults but became best known for his only children's book, the novel *Lassie Come-Home* (1940). The story tells about a collie named Lassie in Yorkshire, England. The dog's owners are forced to sell her because they need money. Her new owner takes Lassie to Scotland, but she escapes and makes the difficult return journey to her original masters.

The character of Lassie has since appeared in several films and a long-running television series.

Eric Mowbray Knight was born in Menston, near Bradford, West Yorkshire, England. Much of his fiction is set in Yorkshire, including the novel *The Flying Yorkshireman* (1936) and the short-story collection *Sam Small Flies Again* (1942). Knight also wrote *This Above All* (1941), a novel about the early years of World War II (1939-1945). Knight was killed in an aeroplane crash during the war.

Some symbols of leading orders of knighthood



Order of the Bath (Military star)—Great Britain



Order of the Star of India (Badge)—Great Britain



Order of the Indian Empire (Badge)—Great Britain



Order of the Elephant (Badge)—Denmark



Order of the Bath (Civil badge)—Great Britain



Order of St. Michael and St. George (Badge)—Britain



Royal Victorian Order (Badge)—Great Britain



Order of the Elephant (Star)—Denmark

**Knight, Dame Laura** (1877-1970) was a British artist noted for her paintings of the ballet, the circus, and gypsy life. Her original, lively style of painting and brilliant use of colour give her pictures great force. Knight also painted several water-colour landscapes.



Dame Laura Knight

Laura Knight was born at Long Eaton, in Derbyshire, England. She studied painting at the Nottingham School of Art, where she won several awards. She had her first picture accepted by the Royal Academy in 1903. In 1929, she was created a Dame of the British Empire, and, in 1936, became the first woman Royal Academician for more than a hundred years. Her autobiography, *Oil Paint and Grease Paint*, was published in 1936.

**Knight, Sarah Kemble.** See *American literature* (Histories).

**Knighthood, Orders of.** Knights of the Middle Ages banded themselves together in groups called *orders*. They vowed loyalty to their king or lord and formed a military organization to defend his land against enemies. During the Crusades, orders of knighthood fought the Muslims in the Holy Land. The knights who joined these orders took religious vows to live as monks as well as loyal fighting brothers. The most famous of the religious orders were the Knights of Saint John, the Knights Templars, and the Teutonic Knights.

**Honorary orders.** Honorary orders of knighthood were copied from the military orders of the Middle Ages. They were founded by a ruler or lawmaking body

to honour achievement and give special favour. In many countries, membership in these orders is given for achievement in the arts, the sciences, and business, as well as for military distinction.

The chief British orders of knighthood, with the dates of their founding, include: The Order of the Garter (1349); the Order of the Thistle (1687); the Order of the Bath (1725); the Order of Saint Michael and Saint George (1818); and the Royal Victorian Order (1896). The Order of the British Empire was created in 1917. It has five different classes for men and women, two of which carry the honour of knighthood. They are Knights (or Dames) Grand Cross and Knights (or Dames) Commander. A knight who does not belong to any special order is known as a *knight bachelor*.

In Great Britain, new knights are named on New



The ceremony conferring knighthood is called *investiture*. Queen Elizabeth II of Great Britain conferred knighthood on Gary Sobers, a cricket player from Barbados, in this ceremony in 1975. In Great Britain, men who become knights are called *Sir*. Women who enter orders of knighthood are called *Dame*.





*The Attainment: The Vision of the Holy Grail* (1896), a detail of a tapestry by Sir Edward Burne-Jones; Birmingham Museums and Art Gallery

**Legends about knights** were popular in medieval literature. Many stories told how the Knights of the Round Table sought the Holy Grail, the cup or dish Jesus used at the Last Supper. A number of poems describe the adventures of Sir Perceval as he searched for the Grail. This tapestry shows Sir Perceval, *right*, kneeling before the Grail in the presence of three angels.

Year's Day or in the spring. Membership in an order entitles the holder to be called *Sir*. The wife of a knight is called *Lady*. Women who are given the rank corresponding to knighthood are called *Dame*.

Other well-known European orders of knighthood and their founding dates are the Seraphim of Sweden (1748), the Golden Fleece of Spain and Austria (1429), the Danish Order of the Elephant (1462), the Saint Andrew of Russia (1698), the Black Eagle of Prussia (1701), the Legion of Honour of France (1802), and the Norwegian Order of Saint Olaf (1847).

A person who is made a member of an order of knighthood receives a *badge* or *jewel* at a ceremony called an *investiture*. On formal occasions, the person wears the *star* of the order on his or her chest.

**Related articles in *World Book* include:**

Crusades	Knights and knighthood
Decorations, medals, and orders	Knights of Saint John
Garber, Order of the	Knights Templars
	Teutonic Knights

**Knights, Teutonic.** See **Teutonic Knights**.

**Knights and knighthood.** The word *knight* comes from the Old English word *cnicht*, which means a *household retainer*. English people used the word to describe French mounted soldiers who first came to England after the Norman conquest of 1066. These knights were merely warriors equipped and trained to fight on horseback. Knighthood carried no social distinction, and any man could be a knight. Many lords had knights, who performed household duties in peacetime and fought in time of war. The lord provided armour and horses for his knights.

Between 1100 and 1300, most knights became *vassals* (servants to lords) and received some land. As the cost of armour and a war horse increased, only wealthy men could equip themselves to fight as knights. Thus the knights became a class divided from the rest of the community. Entry to their ranks became a mark of honour and distinction. Any man could be made a knight, but most new knights had fathers who were knights or who belonged to the nobility. The age of knights and knighthood is often called the *age of chivalry*. The word *chivalry* comes from the Old French word *chevalerie*, mean-

ing *horse soldiery*. But the term came to mean the code of behaviour and ethics that knights were expected to follow.

Knighthood grew up as part of the feudal system of the Middle Ages. It lasted as long as wars were based on heavy cavalry and combat between individuals. Knights became less important in warfare by the 1400s because of changing military tactics and the introduction of gunpowder.

In Great Britain, knighthood is now an honour bestowed on individuals by the king or queen in recognition for outstanding merit or service. It no longer has any military meaning.

### Training

In the Middle Ages, a young boy in training to be a knight spent the first years of his life chiefly in the care of the women of his family. During this time, he learned to ride a pony and care for horses.

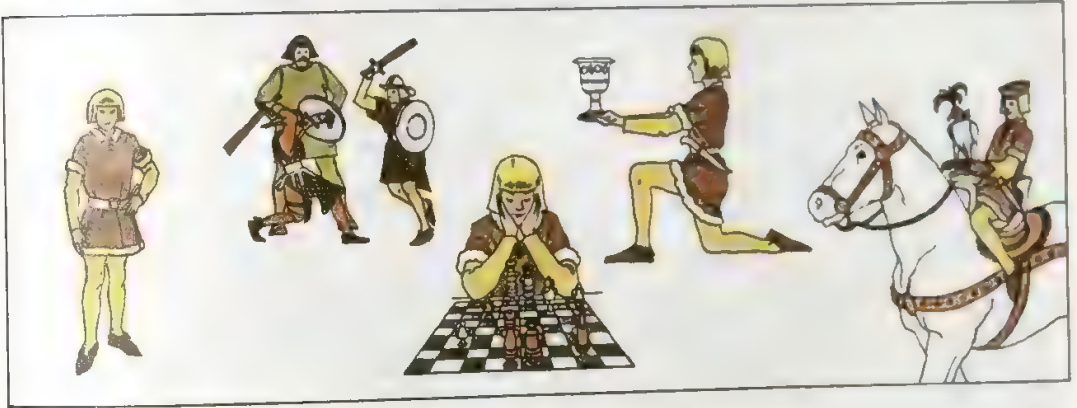
**The page.** When a boy reached the age of about 7, he left home to begin training for knighthood. As a *page*, he joined the household of another knight or a nobleman. There he learned to handle small weapons. He also learned the code of courtesy and behaviour expected of a knight.

**The squire.** A boy began his training as a *squire* at 15 or 16. He acted as a *valet*, or personal servant, to the knight who was his master. He set the table and served meals. The squire received serious training as a mounted soldier. He rode with his master into battle and took part in the fight. In battle, the squire wore silvered spurs to distinguish him from a knight, whose spurs were gilt. A squire's period of service usually lasted for about five years. Then the squire was eligible for knighthood.

**Knighting.** Any knight could bestow knighthood on another. Sometimes men were knighted on the field of battle, but the ceremony usually took place during times of peace. The earliest knighting ceremonies were simple. A knight buckled on the armour of the squire and proclaimed him a knight. Later ceremonies became more complicated. One man buckled on the sword, and another fastened the spurs. The squire knelt before the

### Training for knighthood

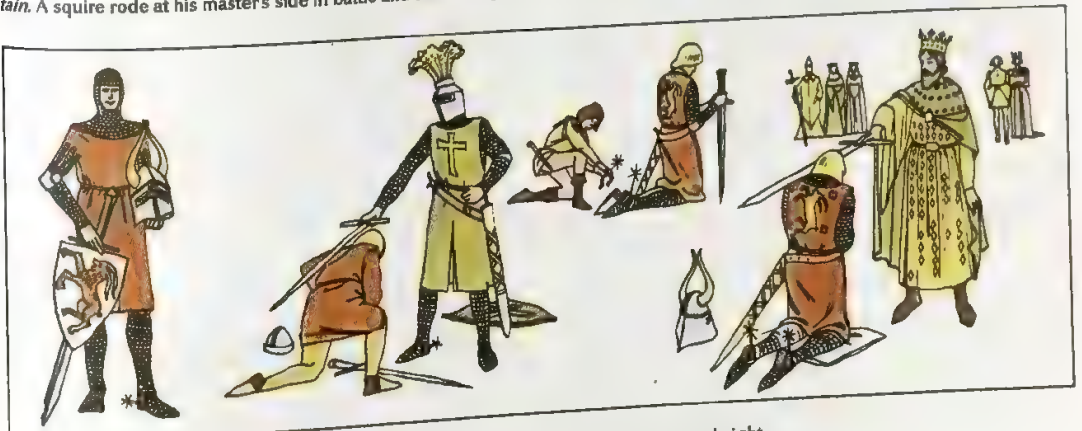
To become a knight, a boy spent several years serving his master as a *page* and then as a *squire*. Knights followed a code of behaviour and ethics that became known as *chivalry*.



A boy served as a **page** from about the age of 7 until his teens. During this period, he learned to fight with swords and played chess and other games that taught skill and strategy. A page also learned to serve his master and to hunt with falcons and hawks.



A **squire** acted chiefly as a **servant** to his master while training for knighthood. Squires often tested their skill with a lance in jousts against one another or used a dummy target called a *quintain*. A squire rode at his master's side in battle and took charge of prisoners.



"**I dub you knight.**" Those words completed the ceremony in which a squire became a knight. Some men were knighted on the battlefield if they had shown great bravery. The knight received his sword and other weapons from his master or king, or from members of the king's court.





From *A Boy's King Arthur* by Sidney Lanier.  
Illustrated by N. C. Wyeth.

In a tournament, knights on horses galloped toward each other and tried to drive their lances through each other's armour.

*parrain*, or the man who was knighting him. The parrain struck the squire on the back of the neck with the palm of his hand. Later a tap with a sword replaced the blow with the hand. This tap was called the *accolade*, from the French word *col*, meaning *neck*. The tap was followed by the words, "I dub you knight."

Religious ceremonies became part of the knighting ceremony when the ideals of Christianity became more closely linked with knighthood. Before a squire was knighted, he kept vigil in church. He confessed, fasted, prayed, and pledged to use his weapons for sacred causes and ideals. Before the ceremony, he bathed and put on special clothing. The pageantry made the ceremonies expensive. Feudal custom allowed an overlord to levy money from his vassals when his eldest son was knighted.

### The code of chivalry

Chivalry was the knight's code of behaviour. The code of chivalry grew with the songs of the minstrels in the 1000's and 1100's. Their poems show that a true knight had faith and a deep love of the Christian religion. He defended the church and was ready to die for it. He loved the land of his birth, and gave generously to all. His strength served to protect women and the feeble. A knight championed right against injustice and evil, and never surrendered or flinched in the face of the enemy.

In real life, a knight did not always resemble the ideal knight of the minstrels. His code of honour and loyalty was sometimes applied only to members of his own class, and he often acted brutally toward people of low birth. The violent life of the Middle Ages made it diffi-

cult to prevent violations of the code. Even dedicated knights were also soldiers interested in conquest and plunder. A knight who was proved guilty of cowardice or other serious misconduct was disgraced by having his sword and his spurs broken. However, "serious misconduct" usually meant violations against other knights and their families.

### Clothing and armour

**Clothing.** In the 1100's, a knight wore a sleeved undertunic of linen or wool, reaching below the knees. Over this was a sleeveless tunic, open at the sides and fastened with a belt. He had a cloak fastened at the shoulders, and wore long stockings and leather shoes. In the 1200's, the undertunic reached to the ankles, and the knight also wore a fur-lined *surcoat*, which had long sleeves and a hood that covered his head.

Clothes in the 1300's became more colourful and elaborate. The undertunic covered only the torso, and buttoned down the front. The sleeves buttoned tightly from wrist to elbow. The trousers also fitted tightly. Jewelled felt hats and decorated capes became popular in this period.

Fashions in the 1400's went to extremes of decoration and display. The surcoat was pleated, edged with fur, and fastened at the waist with a belt. Shoulder padding and stiffening over the chest created an exaggerated waistline. The sleeves were long, full, and stiff. Shoes became so pointed that the front was often curled up and fastened to the knee with a small chain. From the 1200's to the 1400's, knights dressed colourfully and carefully followed changes in fashion.

**Armour.** The early knight wore a conical helmet with a projection to cover his nose. He also wore a long garment of padded fabric or leather covered with interlaced metal rings, called *mail*. In the 1300's, a stronger helmet covering the entire head of the wearer replaced the conical helmet. Patches of plate armour were added to protect places the mail did not adequately defend. Strips of plate were designed to protect the elbow, the arm, the knee, and the part of the leg between the knee and the ankle. Plates of metal, called *pauldrons*, covered the opening in the armour at the junction between the arm and the body. The shield became much smaller and could be shifted to protect the face and head. The lance was the knight's principal weapon, but he also used a sword, mace, and battle-axe. His sword hung on his left side, and a dagger on his right.

In the 1400's, plate armour covered the knight's body completely. A mail collar covered the gap between the helmet and the top of the body armour. A visor, fitted to the helmet, protected the face. The knight wore metal gloves, called *gauntlets*, as well as iron shoes. Strips of mail covered the arms and legs. Swords became lighter and less cumbersome.

Gunpowder appeared on the battlefield in the early 1300's. The new armour, designed to protect against gunfire, was so heavy that the knight had to be lifted on his horse by a crane. If he fell off during battle, he could not get up without help and lay at his enemy's mercy.

The coat of arms provided the only recognizable feature of a knight when his face was covered. It was painted on his shield and on the surcoat that he wore over his armour. Horses often wore cloth trappings with



*The Vigil* (1864), a detail of an oil painting by John Pette; the Tate Gallery, London

The vigil was an important step in becoming a knight. The individual kept his vigil the evening before he received his knighthood. Throughout the night, he knelt in front of a church altar confessing his sins, fasting and praying. His armour was placed on the altar during the vigil.

the coat of arms. Every knight's coat of arms was different, and knights became very good at identifying each other at a glance.

### Tournaments

Tournaments developed in the 1100's, probably in northern France. Large numbers of knights gathered and split into two sides to fight each other. These fights were much like real battles, and they provided valuable military training. The defeated knights often had to pay ransoms to the winners to recover their freedom and possessions. A tournament could last for several days and range over the countryside.

Kings opposed tournaments because such large gatherings of armed men could lead to rebellion, and because they were bloody and wasteful. As a result, they could be held only with royal permission. Those who broke this rule suffered imprisonment and loss of property. The church supported the ban on tournaments. It refused Christian burial to anyone who died in a tournament.

In the 1200's, warlike tournaments gave way to *jousting*, which was combat between two men. Jousting took place with blunt weapons and was confined to an enclosed field. The joust often became a social gathering attended by ladies and common people. *Tilting* also became popular. In tilting, two knights on horseback charged at each other in the *lists*, or narrow lanes, separated by rails to keep the horses apart. The purpose of the tilt was to unseat the opponent with a blunt lance or pointless sword and win the honour of the day.

### Knighthood in literature

Knighthood and chivalry were favourite themes in medieval literature. The poets and minstrels of western Europe created stories of kings, heroes, and their ladies. The stories centred on life in the castle, chivalry, and tournaments and jousts. In the 1100's, a group of French poet-musicians called *troubadours* began composing songs known as *chansons de geste*. These chansons idealized love and described heroic adventures of the knights. Some troubadours were knights, and they wrote exaggerated accounts of their own adventures. Bertrand de Born was an outstanding knightly trouba-

dour. Many of the European kings, such as Richard the Lion-Hearted of England and Alfonso X of Castile, also composed chansons.

One group of medieval stories made up the Arthurian legend. Arthur was a shadowy historical figure who probably lived about 500. The real king Arthur had little to do with the legends. He supposedly dined with his men at a round table. His knights, including Lancelot and Galahad, were Christian warriors who faced perils and searched for the Holy Grail (see *Holy Grail*). They protected the weak and were guided by the love of a lady.

The legend of King Arthur first appeared about 1150 in the work of a Welsh chronicler, Geoffrey of Monmouth. The Norman poet, Wace, used this legend in his work *Le Roman de Brut*. This work was the inspiration of Chrétien de Troyes, who wrote verse romances between 1165 and 1181. Chrétien was the first to mention the Holy Grail. The Arthurian themes inspired Marie de France, author of the lay *Lanval*, written about 1189. Sir Thomas Malory published his version of the Arthurian legends, *Le Morte Darthur*, in 1485. Since then, many more authors have written versions. These include Edmund Spenser's *Faerie Queene*, William Morris' *The Defence of Guenevere*, Alfred, Lord Tennyson's *Idylls of the King*, and T. H. White's *Once and Future King*.

Charlemagne, the king of the Franks from 768 to 814, rivalled Arthur as the centre of legend. He was the model leader of Christendom against the Muslims and appears in such works as *The Song of Roland* (see *Roland*).

### Related articles in *World Book* include:

Armour	Don Quixote	Knights of St. John
Belgium (picture:	Feudalism	Knights Templars
A pageant)	Heraldry	Minnesinger
Crusades	Homage	Minstrel
Decorations, medals, and orders	Knighthood, Orders of	Teutonic Knights
		Troubadour

**Knights Grand Cross of the Bath.** See Honours and awards.

**Knights Hospitallers.** See Knights of Saint John.

**Knights of Malta.** See Knights of Saint John.

**Knights of Saint John**, also called the Knights Hospitallers and the Knights of Malta, is a religious order of



the Roman Catholic Church. A man named Gerard founded the order in the late 1000s in a monastery at Jerusalem.

The monastery was dedicated to Saint John the Baptist, and the monks called themselves Brothers of St. John, or Hospitaliers. At first, their work was limited to caring for pilgrims and for the sick. Later, the order fought in the Crusades and its members became powerful rivals of the Knights Templars. When the order of the Templars was abolished in 1312, the Hospitaliers took over most of the property of the order. The Knights of St. John were rich and powerful.

When the Holy Land fell to the Muslims, the Hospitaliers moved their headquarters from Jerusalem to the island of Cyprus, and then to the island of Rhodes. After the Ottoman Turks conquered Rhodes in the 1500s, the order moved to Malta. It stayed until 1798, when Malta surrendered to French forces led by Napoleon Bonaparte. Soon the British gained possession of Malta. The worldly power of the Knights of St. John ended, but the group continued to exist as a religious order.

The Knights of St. John carried a specially shaped cross when they went into battle during the Crusades. It had eight points and is now known as the Maltese cross. See **Cross** (picture).

See also **Knights Templars**; **Flag** (picture: Historical flags of the world [Crusaders' flags]).

**Knights of the Bath.** See **Honours and awards**.

**Knights of the Round Table.** See **Arthur, King**; **Round Table**.

**Knights Templars** were members of a religious military order of Christian knighthood. The order was founded about 1119 in Jerusalem by the French knights Hugh des Payens and Godfrey of St. Omer. The order was first called "the poor Fellow-Soldiers of Christ and the Temple of Solomon" because of their early state of poverty and the lodgings given them by King Baldwin II of Jerusalem. The lodgings were in the compound of the king's palace known as the Temple of Solomon.

The original purpose of the Templars complemented that of the Knights of St. John of Jerusalem, also known as the Knights Hospitaliers. This latter order aided pilgrims in the Holy Land while the Templars protected pilgrims on the way to and from the Holy Land.

The Templars organized under a *rule* (regulations for religious life) composed by Saint Bernard of Clairvaux. He stimulated the order's fame and growth through his writings and preaching during the Second Crusade (1147-1149). The Templars took monastic vows of poverty, chastity, and obedience. They avoided extravagant ceremony and clothing, wearing the white mantle of the Cistercian order, with a red cross added.

At first the order included only knights, but gradually it admitted *chaplains*—priests who ministered to the knights—and *sergeants*—wealthy members of the middle class. The pope took the knights under his special protection, and the order added to its original purpose the duty to fight all "infidels" who threatened Christianity. The Templars thus played a key role in the Crusades and became a powerful military organization. The order grew rich with properties donated by grateful kings and princes.

The Templars entered the banking business, and *Temples* (local lodges) established throughout Europe

attracted deposits of massive wealth. Princes and commoners alike banked with the Templars, and many states became indebted to them. With the fall of the Holy Land to the Muslims in 1187, the order lost its founding purpose and became a target for unhappy and envious debtors.

In 1302, King Philip IV of France came into conflict with the pope. The king was also near bankruptcy. He waged a vicious and skilful campaign aimed at suppressing the Templars, hoping to gain the order's wealth and at the same time to strike a blow against the papacy. Philip ordered all the Templars in France thrown into prison, where they were tortured until they confessed to accusations of heresy, unnatural practices, and dishonest business activities. Historical evidence has supported only the charge of dishonesty.

Templars in England, Germany, Spain, and Portugal also stood trial, but most were acquitted because they were beyond Philip's immediate control. In 1312, Pope Clement V yielded to Philip's pressure and issued a *bull* (official decree) suppressing the Templars. The pope, however, awarded the Templars' property to several military orders in Spain and Portugal and its cash holdings to the Knights Hospitaller. During the French trials, the Templars' last grand master, Jacques de Molay, confessed to false charges. He later withdrew the confession but was burned at the stake anyway in 1314.

**Knitting** is a method of making fabric by looping yarns around each other using one or more knitting needles. Much of the clothing we wear is made by knitting, including sweaters, socks, scarfs, and hats. Knitted clothes are popular because they can stretch and then return to their original shape. A knitted fabric can be formed to create such items as wallhangings. Knitting can also decorate other fibre forms made by crocheting, macramé, and weaving. Knitting may be done by hand or by machines. This article describes hand-knitting. See also **Knitting machine**; **Textile** (Knitted fabrics).

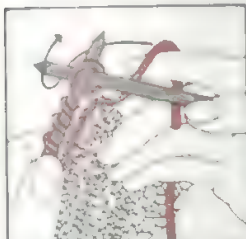
**Materials.** Most knitting needles are 18 to 35 centimetres long. One end is pointed, and the other end has a knob to prevent the fabric from slipping off. The earliest knitting needles had a hook at one end. They were probably made of twigs, pieces of bone, or copper wire. Today, knitting needles have smooth tips and are generally made of aluminium, wood, or plastic. The thickness of the needles and the type of yarn can be varied according to the nature of the fabric desired. Slender needles and lightweight yarn may be chosen for a delicate knit. Thick needles and heavy yarn produce a bulky knit. Wool has been the traditional yarn for knitting, but cotton, silk, and synthetics such as acrylic have also become popular. Blended yarns of two or more different fibres add to the variety.

Knitting with two needles produces a flat fabric. Three or four needles with points at both ends are used to create tubular pieces for socks and skirts. Knitters may also use circular needles and knitting spoons.

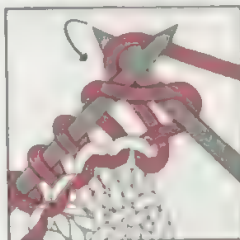
**Knitting the fabric.** Most knitting is done with two needles. The fabric is made by wrapping a series of looped threads around one needle in a required number. This is called *casting on*. The second needle is inserted into one or two loops at a time, and the yarn is wrapped around in a certain way. The stitch is made when the loop is passed onto the second needle.

## How to make a knit stitch

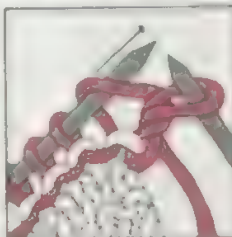
First, cast on a row of stitches as described in this article. Hold the needle with the cast-on stitches in the left hand and the other needle in the right hand. Insert the tip of the right-hand needle into the top stitch on the left-hand needle. Now follow the steps shown below.



Guide the yarn forward around the tip of the right-hand needle.



Pull the yarn through the top stitch, using the tip of the right-hand needle.



Drop the top stitch off the left-hand needle; keep the stitch on the other needle.



A complete knit stitch is shown above. Repeat these steps for each new stitch.

The two basic stitches are the *knit* and the *purl*. There are many additional stitches, and hundreds of methods of combining the stitches to add variety to the fabric. One of the most popular stitch patterns is the *rib stitch*. This is often used at the bottoms, cuffs, and necklines of sweaters.

Another common decorative stitch is the *cable stitch*. Knitting with various colours and textures of yarns adds interest to the designs. Knitted fabric is shaped by increasing or decreasing the number of stitches.

Most knitters follow written patterns that contain a standard vocabulary of abbreviations. A pattern gives directions on the types of stitches used, the order in which they are used, and the size and shape of the finished piece of fabric.

The knitter usually makes a sample about 8 centimetres square to determine the *gauge*. The gauge is the exact number of stitches and rows per centimetre produced by the needles, yarn, and type of stitch. Knowing the gauge is essential when sizes are required for clothing because each person's hand-knitting differs in tension. If the knitted sample does not match the pattern gauge, the knitter must either change the needle size or the thickness of the yarn. This will ensure the proper finished size of the garment. If the gauge measure is too large, a smaller needle or a thinner yarn is required. If

the gauge measure is too small, a larger needle or a thicker yarn needs to be used.

**History.** The origin of knitting is not known, but the craft has been practised by many cultures for centuries. Knitting probably began about A.D. 200 in Arabia. As neighbouring peoples traded with the Arabs, the technique gradually became known to much of the ancient world over the next few hundred years.

Peoples of the Middle East taught Europeans how to knit during the 600s. Knitting guilds (workers' unions) were soon formed throughout Europe, and for the rest of the Middle Ages, knitting was considered as much an industry as weaving. Knitters had to serve as apprentices for six years before they could be admitted to a guild. Knitters also had to prove their ability to knit stockings, berets, shirts, and after 1602, elaborate carpets.

The Spanish carried knitting to South America and Central America in the 1500s, but this art may have already been known by some people there. In Spanish-American cultures, knitting became a popular and practical pastime for the peasants.

In cold climates, knitting has always been an essential way of creating warm clothing. Some examples are the knitted hats of the Peruvians in the Andes Mountains and the fishermen's sweaters of Ireland.

**Knitting machine** is a device that manufactures knitted fabrics. Like hand knitting, machine knitting makes fabric by forming loops in yarn and linking them to one another by means of needles. But a knitting machine uses a large number of needles and can knit from 100,000 to more than 7 million stitches per minute. Knitting machines make a variety of fabrics ranging from delicate lace to heavy rugs. Other common knitted-fabric products include hosiery, a wide variety of other clothing, and curtains.

There are two main types of knitting machines: *weft knitting machines* and *warp knitting machines*. Each type produces a different knitted fabric.

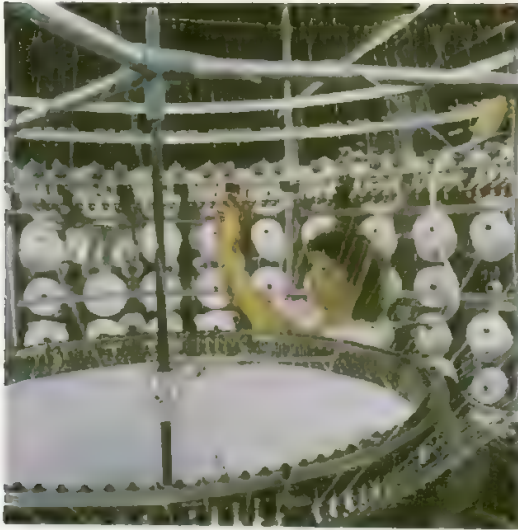
Weft machines knit crosswise stitches and produce a fabric that stretches elastically. Most weft machines are *circular*—that is, their needles are arranged in a circle on a rotating cylinder. As the cylinder turns, it knits a tube-shaped fabric. Small-diameter circular machines are used to make stockings, tights and socks.

Warp machines knit lengthwise stitches and produce a flat fabric that is less elastic than a weft-knit fabric.



Popular knitting patterns include the *garter*, *basket*, and *cable*, shown above from left to right. These patterns are used in making sweaters, scarfs, and other knitted garments.





**Knitting machines** produce fabric with amazing speed. The circular machine shown above has its needles arranged on a rotating cylinder. It produces a tube-shaped fabric.

Most warp machines are *flat-bed* machines that have their needles arranged in a straight line. Many knitting machines can automatically drop and add stitches to produce fabric shaped according to a specific pattern. Such fabrics are called *fully fashioned fabrics*.

William Lee, a British church minister, invented the knitting machine in 1589. Lee's device was a flat-bed machine that was operated by hand. Marc Isambard Brunel, a British engineer and inventor, built the first circular knitting machine in 1816. In 1864, William Cotton, a British textile worker, patented the first fully fashioned knitting machine.

See also **Stockings**; **Textile** (Knitted fabrics; picture: Knitting).

**Knock.** See **Petrol** (Petrol octane ratings); **Octane number**; **Tetraethyl lead**.

**Knole.** See **Kent**.

**Knopf, Alfred A.** (1892-1984), was a leading American book publisher. Knopf published the work of hundreds of the most important authors of the 1900's, including 16 winners of the Nobel Prize for literature. Working closely with his wife, Blanche, he introduced many European, Latin-American, and Asian writers to American readers. Knopf also gained respect for insisting on high-quality printing and design.

Knopf was born in New York City. He founded the publishing company Alfred A. Knopf, Inc., in 1915. He was its president from 1918 to 1957, and chairman of the board from 1957 to 1972. From 1972 until his death he was chairman emeritus but maintained an active interest in the company.

**Knopwood, Robert** (1761-1838), was the first chaplain of Van Diemen's Land (now Tasmania). He was born at Threxton, in Norfolk, England, and landed in Hobart with David Collins, the first lieutenant governor of Van Diemen's Land, in 1804. His diary portrays the life of the times. His work took him to the northern settlements, the Derwent valley, and the Sorell district.

**Knossos**, also spelled *Cnossus*, was the chief centre of the Minoan civilization, which flourished on Crete and some Aegean Sea islands from about 3000 to 1100 B.C. The culture was named after the legendary King Minos of Crete. Knossos stood on Crete's north coast.

Knossos dates from about 4000 B.C. The city's first great palace, built around 2000 B.C., was destroyed by an earthquake in 1700 B.C. A second palace burned and collapsed about 1400 B.C. Knossos was the leading Greek city-state on Crete until the Romans conquered the island in 67 B.C. It continued as an important state until the A.D. 300's. In 1900, Sir Arthur Evans, a British archaeologist, began the excavation of the palace at Knossos. His work added much new information about the Aegean area's Bronze Age.

**Related articles in World Book include:**

Achaean	Dorians
Aegean civilization	Minos
Architecture (Minoan architecture)	Minotaur
Clothing (picture: The Cretans)	Painting (picture: Queen's room)

**Knot** is the name of two species of wading birds of the Northern Hemisphere. The *knot* breeds on dry, stony places throughout the Arctic tundra. In summer it has a brick-red face and underparts, but in winter its underparts are white. It spends winter in coastal areas as far away as Australia and New Zealand. In flight, a flock looks alternately light and dark as the birds wheel around in tight formation showing their white underparts then dark upperparts. On their winter feeding grounds, knot move rapidly along the shore in search of crustaceans, insects, molluscs, and worms.

The *great knot* breeds in northeastern Siberia and spends winter in China, India, and Australia.

**Scientific classification.** Knot belong to the wader family, Scolopacidae. The knot is *Calidris canutus*, and the great knot is *C. tenuirostris*.

**Knot** is a unit of speed used for ships and aircraft. It equals one nautical mile (1.85 kilometres) an hour. A ship with a 20-knot speed can go 20 nautical miles (37 kilometres) in an hour.

The *international nautical mile* equals one-sixtieth of one degree, or a minute of arc, of the earth's circumference. Navigators use the nautical mile because of its simple relationship to the degrees and minutes by which latitude and longitude are measured. The international nautical mile equals 6,076.10 feet, or 1.15 *statute* (land) miles (1.85 kilometres).

The term *knot* came into use in the earlier days of sailing, when ships carried a speed-measuring device called a *log chip and line*. The line was wound up on a reel. The chip, a piece of wood, was allowed to drag in the water behind the ship. The chip caused the line to unreel as the ship moved. The line was knotted at intervals of 47 feet 3 inches (14.4 metres). At the end of the first interval was one knot. Two knots marked the end of the second, and so on. The line was allowed to run for 28 seconds. An interval of twenty-eight seconds is to one hour approximately what a distance of 47 feet 3 inches (14.4 metres) is to 6,076.1033 feet (1,853 metres). Therefore, if the log had pulled out 5 intervals of line in 28 seconds, the sailors knew the ship was moving at 5 knots, or 5 nautical miles (9.25 kilometres) an hour.

See also **Log**;  **Mile**.

**Knots, hitches, and splices** are methods used to tie ropes or to fasten them together. Most persons call any method of tying rope a knot. But experts generally recognize a difference between knots, hitches, and splices. A *knot* is any fastening made with cords or ropes. A *hitch* is used to tie a rope to a ring, spar, post, or other object. A *splice* permanently joins the ends of two ropes, or forms a single rope into a permanent loop. A fourth type of fastening, the *bend*, is used to tie the ends of two ropes together.

A rope with a knot in it is weaker than an unknotted rope. For example, a reef knot weakens a rope by 50 per cent, and a bowline weakens a rope by 40 per cent. In general, hitches weaken a rope less than knots and bends do, and splices weaken a rope even less than hitches do.

### Uses of knots

In spite of the development of wire rope and mechanical fastenings, knots are still important to people in many occupations. The ability to tie knots has always been one of the chief skills required of sailors, and remains important on ships and boats. Sailors use knots to fasten ropes on objects to be lifted on or off vessels. Owners of sailing boats must master the skill of tying knots in order to adjust the *rigging*—lines attached to the sails, booms, and masts. See *Sailing*.

People who enjoy outdoor pursuits use knots to set up tents, to prepare fishing tackle, to build traps, and to do hundreds of other jobs. Surgeons must tie the tiny knots in *sutures* (threads) used to close incisions.

Knots are widely used on farms. For example, farmers have to be able to tie knots in the rope used to make halters for animals. Knots are also used to tether horses, cows, and other animals to posts. Farmers often have to rig blocks and tackles to lift hay or other products into barns (see *Block and tackle*).

Other people who make wide use of knots and rope include explorers, mountain climbers, builders, and weavers. Members of the Scouts and Girl Guides or Girl Scouts learn the art of tying knots because of their importance in camping and hiking. Learning how to tie many different types of knots can also be a hobby. Some people make *knot boards* that permanently display various kinds of knots.

### Tying knots

The **language of knots** was developed to name the various parts of a rope and the simple shapes into which they can be formed. The *end* of a rope is the part with which knots are tied. The rest of the rope is called the *standing part*.

The simple shapes that can be made with rope form the basis for all knots. A person forms a *bight* by placing the end of the rope alongside the standing part to form a loop. In an *overhand loop*, the end of the rope is crossed over the standing part. An *underhand loop* is the opposite of an overhand loop. It is formed by placing the end of the rope beneath the standing part. An *overhand knot* is a loop through which an end has been passed. This knot is used on the end of a rope as a stopper to keep it from running through small openings.

**Preparing rope for knots.** You can use most rope for knot tying without preparing it. However, most ex-

perts do two things to a rope before putting it to use. Most new rope is stiff, so experts usually work the rope, or stretch, twist, and pull it to take the stiffness out.

The most important thing that has to be done to a new rope is *whipping*. This means tying the ends so they do not unravel. There are several ways of whipping a rope. In one simple method, form a piece of light yarn into a loop and place the loop along the rope near the end to be whipped. Then tightly wind the yarn around the loop and rope to bind them together. Keep winding until the length of the whipping equals the diameter of the rope, but leave a small part of the yarn loop exposed. When the winding is completed, draw the short end of the twine through the loop, and pull both ends until the loop is drawn beneath the winding. Then trim the ends of the yarn.

Sailors often use a more difficult method to whip rope. They call it the *palm and needle* method because it involves the use of a needle similar to that used for sewing, and a leather glove, or palm. The palm is used to force the needle through the rope. The illustrations with this article show still another method of whipping a rope.

**Useful knots.** Choosing the right knot is an important part of working with rope. Most knots have been developed to meet some particular need. Some of the most useful knots are described below and illustrated with this article.

**The reef knot** is probably the best known and most widely used knot. It serves to join the ends of two ropes, and has the advantage of strength and ease of tying and untying. It slips or jams only if pulled around a corner. Under such conditions, a *carrick bend* or a *splice* must be used. People use reef knots to tie packages and to fasten towing lines. Most people use a variation of the reef knot to tie their shoes. An improperly tied reef knot is called a *granny knot*. A granny knot may come loose under pressure and should not be used.

**The bowline** has a wide range of uses. It ranks as one of the basic knots. At the end of a rope, the bowline forms a strong loop that will not slip or jam if properly tied. Its uses include fastening animals to posts or other objects and forming seats from which people may be suspended, for example while painting, cleaning, or doing other jobs.

**Two half hitches** are used to fasten a rope temporarily to a post, hook, or ring. Other useful hitches include the *clove hitch* for fastening rope to smooth timbers, and the *timber hitch* for towing or dragging logs or spars.

### History

Knots are one of the oldest inventions. People used them to tie arrowheads to their shafts, and to tie bowstrings to bows. Other early uses of knots included making clothes and fishing nets, and binding wood together to make huts or other forms of shelter. The ancient Inca Indians of Peru used knots to keep records of sums and figures.

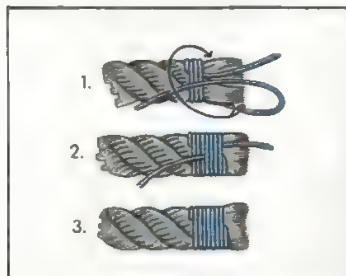
One of the most famous knots is the Gordian knot, mentioned in Greek mythology. This knot was so intricate that legend said that the man who could untie it would rule Asia.

See also **Gordian knot; Rope.**

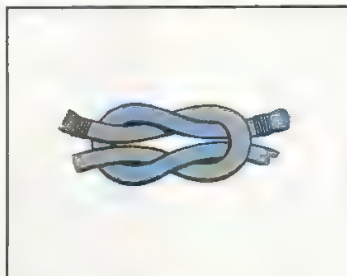


**Some knots, hitches, and splices**

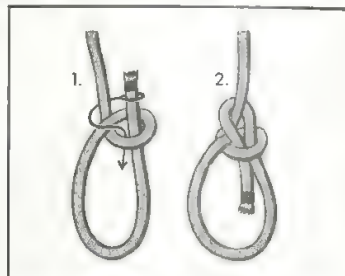
Knots, hitches, and splices are methods used to tie ropes or to fasten them together. They are also used for thread, string, and similar material. Knots, hitches, and splices resemble each other and are often called by the general term *knot*. But a knot refers to a fastening made by tying together



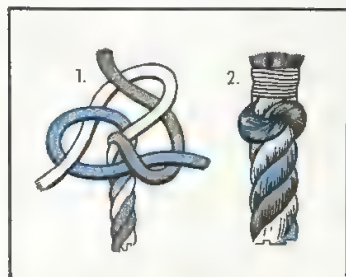
**Whipping** keeps a rope from unraveling or fraying by tying the rope ends with thin cord, twine, or a similar material.



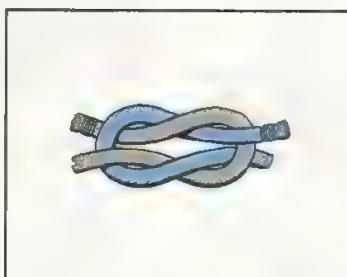
**The reef knot**, or *square knot*, is the most widely used knot for tying packages.



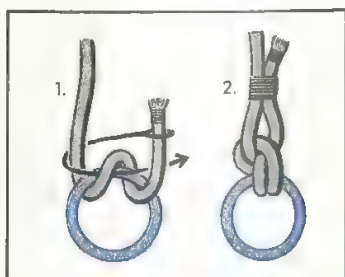
**The bowline** is a loop knot that will not jam or slip if tied properly. It is commonly used for lifting objects.



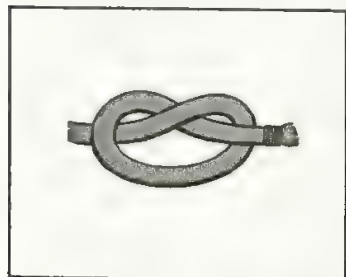
**The wall knot** is generally used to prevent the end of a rope from running through an opening or a pulley.



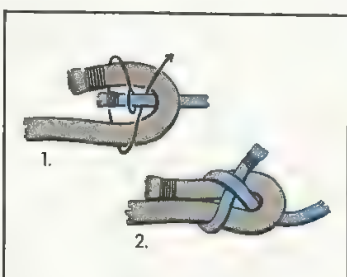
**The granny knot** is often tied by mistake instead of a reef knot. It can be dangerous because it slips and jams.



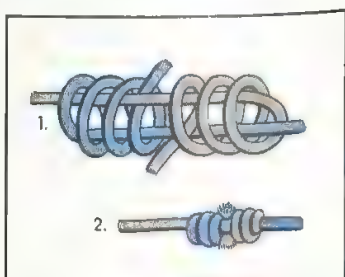
**The fisherman's bend** is a strong, safe knot often used to tie a rope to an anchor, a fishhook, or a link of cable.



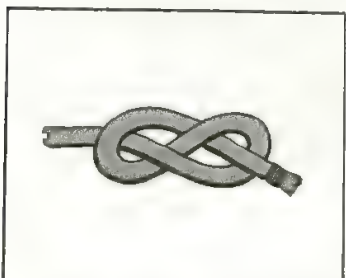
**The overhand knot**, or *thumb knot*, is the smallest and most common knot. It often serves to start other knots.



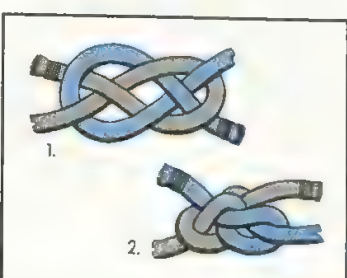
**The sheet bend** is used chiefly to join two ropes of different sizes. It is also called the *weaver's knot*.



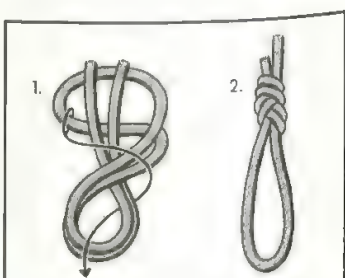
**The barrel knot** is used to tie fish lines together. Because of its shape, the knot causes little disturbance in the water.



**The figure-of-eight knot** resembles the overhand knot, but is larger, stronger, and easier to untie.

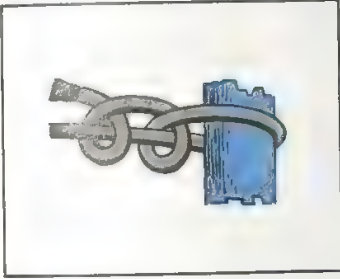


**The carrick bend** is used to tie ropes or cables together. A very strong knot, it is easily untied and does not jam.



**The Flemish loop** is a strong knot used for raising loads. Its main disadvantage is that it is very difficult to untie.

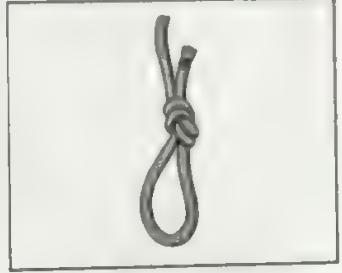
pieces of one or more ropes. A hitch is used to tie a rope to a ring, a post, or some other object. A splice forms a loop from one rope or joins the ends of two ropes. There are dozens of useful knots, hitches, and splices. The illustrations below show some of the most common ones.



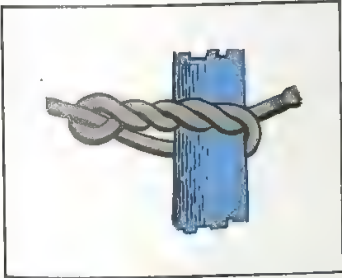
**Two half hitches** is the name of a knot used to temporarily but quickly fasten a line to a post, a hook, or a ring.



**The cow hitch, or lark's head**, is tied at the end of a single rope. It is used when weight is evenly distributed at both ends.



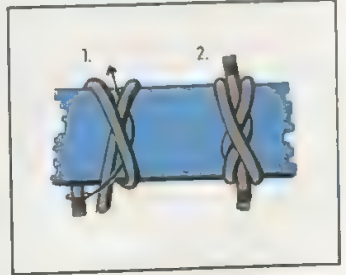
**The overhand loop** is used for tying a load onto a truck. It is useful because both ends of the rope can be used again.



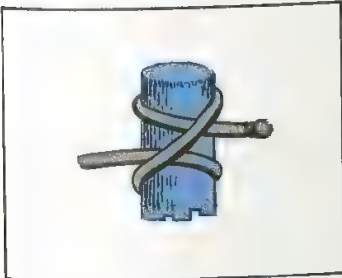
**The timber hitch** is a strong knot used for lifting crates and bales and towing logs and other cylindrical objects.



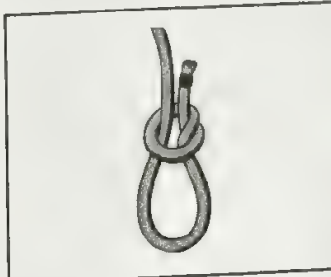
**The cat's-paw** is used for heavy lifting. It consists of two bights of rope that are brought together and placed on a hook.



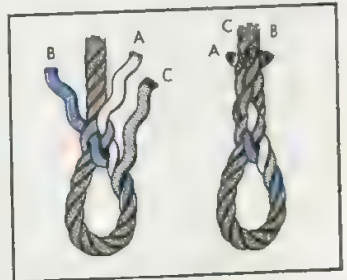
**The constrictor knot** is intended to keep an object from expanding. It is useful as a temporary binding or whipping.



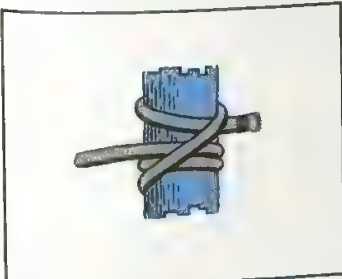
**The clove hitch, peg knot, or boatman's knot**, is a quick and simple method of fastening a rope around a post.



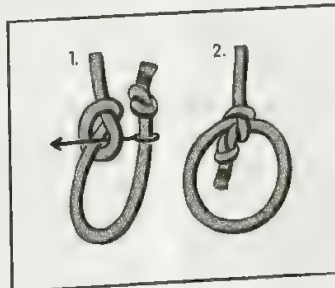
**The slipknot** slides along the rope around which it is made. It can be used to make a temporary noose or a lasso.



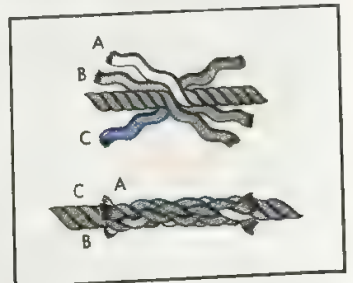
**The eye splice** is the strongest and most permanent rope loop. It is often used as a lariat or to tie boats to a dock.



**The rolling hitch, or magnus hitch**, can be tied around a smooth surface without slipping. It can also be untied easily.



**The honda knot** is a circular loop at the end of a rope. The other end can be moved to tighten or slacken the loop.



**The short splice** is the strongest splice. It is used to make a sling by joining two ropes or two ends of the same rope.



**Knowsley** (pop. 149,100) is a local government metropolitan district in the county of Merseyside, England. The main administrative offices of the district are at Kirkby and Huyton. The district has a variety of industries including electronics and food-processing, and the manufacture of electrical equipment, furniture, and motorcars. Kirkby has a large industrial park.

Knowsley district has fine recreational facilities. Kirkby and Huyton have extensive sports and leisure centres, and at Prescott there is a safari park.

**Knox, John** (1515?-1572), led the Protestant Reformation in Scotland. His strong personality and fiery preaching made him one of the most powerful Scots of his day. Under his leadership, the Church of Scotland adopted a declaration of faith, a form of government, and a liturgy. The church reflected the presbyterian teachings of the reformer John Calvin, who greatly influenced Knox.

**Early years.** Knox was born near Haddington, east of Edinburgh. Little is known of his early life, except that he probably attended the University of St. Andrews. He became a Catholic priest in 1536. In those days, Scotland was one of the poorest, most backward countries of Europe. For many years, Scottish kings had been weak. Some had been children controlled by regents. The country was often torn by conflict between nobles. The church owned much of the nation's wealth, and the kings and nobles controlled the church. Politically, Scotland was merely one small part of the rivalry between France and England.

During Knox's early years, a few Scots tried to become Protestant reformers, though they had little hope for reform in either church or government. In the early 1540's, Knox became a follower of the Protestant reformer George Wishart. Early in 1546, Wishart was arrested on the orders of David Cardinal Beaton, and was burned at the stake on a charge of heresy. In revenge, a group of Protestants assassinated the cardinal later that year and seized the castle of St. Andrews, his residence. Knox did not take part in the assassination, but he joined the Protestants in the castle. Mary of Guise, the Roman Catholic pro-French regent of Scotland, asked for assistance from France. The French fleet captured the castle in July 1547, and Knox and several others were taken to France as galley slaves.

**Later career.** In 1549, the English government obtained the release of Knox and his associates. The government wanted them to build a pro-English Protestant party in Scotland. But the pro-French Catholics in Scotland were too strong, and so Knox went to England as a minister. He preached in Berwick for two years and became known as a radical Protestant reformer. In 1553, Mary Tudor became Queen of England and made Roman Catholicism the state religion again. Knox was one of the *Marian Exiles*—Protestants who fled to the European continent as religious refugees. While there, he met Calvin in Switzerland.



Detail of an engraving (1580) by an unknown artist; Scottish National Portrait Gallery, Edinburgh

**John Knox**

Late in 1554, Knox became pastor of a church of English refugees in Frankfurt, Germany. He was forced to leave Frankfurt after a conflict with moderate Protestants. He returned to Geneva with most of the English radicals from Frankfurt, and founded a new refugee church. In Geneva, Knox corresponded secretly with Protestants in England, Scotland, and France. He also wrote pamphlets justifying the rights of persecuted people to rebel against tyrannical rulers.

Queen Mary died in 1558, and her successor, Queen Elizabeth, again changed England's state religion. Many Marian Exiles returned, and Knox arrived in Scotland in 1559. The English government helped him and his associates rebel against Mary, Queen of Scots, and establish Protestantism as Scotland's national religion. Mary was a Roman Catholic. Under Knox's leadership, the Scottish Parliament made Presbyterianism the state religion in 1560.

From 1560 until his death, Knox was Scotland's most powerful political and religious leader. He was appointed minister of Edinburgh and preached at St. Giles' Cathedral, which became the political and religious centre of Scotland. His unfinished *History of the Reformation of Religion in the Realm of Scotland* is a dramatic autobiographical account of the Scottish Reformation to about 1564.

See also **Presbyterians; Reformation; Scotland** (The Scottish Reformation).

**Knox, Ronald** (1888-1957), a British Roman Catholic priest, scholar, and author, translated the official Roman Catholic Bible, the *Vulgate*, from Latin into modern English (see **Bible** [The first translations]). His version received the approval of the Roman Catholic Church. The translation of the New Testament was published in 1945, and the translation of the Old Testament was published in 1949. He later published several commentaries on the New Testament.

Knox's numerous religious works and published sermons include *Heaven and Charing Cross* (1935) and *God and the Atom* (1946). Less serious writings, including *Essays in Satire* (1928) and *Let Dons Delight* (1939), earned him a reputation for satirical wit. He also wrote works of fiction, including several detective stories such as *The Viaduct Murder* (1925) and *Barchester Pilgrimage* (1935), a parody of the novels of Anthony Trollope.

Knox was born at Kibworth, in Leicestershire, England, the son of an Anglican bishop, and named Ronald Arbuthnott Knox. Educated at Oxford University, he became fellow and chaplain at Trinity College, Oxford. In 1917, he became a Roman Catholic. In 1925, he was made Roman Catholic Chaplain to the University of Oxford, and, in 1936, was made Domestic Prelate by Pope Pius XI.

**Knoxville** (pop. 165,121; met. area pop. 604,816) is the third largest city in the state of Tennessee, U.S.A. Only Memphis and Nashville have more people. Knoxville also ranks as a commercial, educational, and industrial centre of Tennessee.

Knoxville lies on the Tennessee River in the heart of a rapidly developing industrial area of eastern Tennessee. The Tennessee Valley Authority (TVA), a federal development agency, has its headquarters in Knoxville. The city also serves as the gateway to Great Smoky Mountain National Park.



A female koala, shown above eating a eucalyptus leaf, carries her cub on her back. The cub spends its first six months in the mother's pouch and the next six months riding on her back.

**Koala** is the name of one of the best-loved Australian animals. Koalas move slowly through the treetops during the late afternoon and at night. During the day, they sleep securely wedged in tree forks.

The word *koala* is said to come from an Aboriginal word that means *the animal that does not drink*. But koalas will drink at times and may get extra water from dew-soaked leaves when feeding. This characteristic is not unique. Many animals that eat juicy leaves obtain enough water in their food. Another common name was *native bear*. But the koala, a marsupial, is not related to the bears of the other parts of the world. The koala's closest marsupial relatives are wombats. The two animals have many similarities, including a backward-opening pouch.

**Description.** Koalas are stout animals. In the state of Victoria, males weigh about 10 kilograms and females, 8. The Queensland race is smaller. Koalas measure 65 to 75 centimetres in length.

A koala's arms and legs, which are similar in size, are excellent for climbing. On the arm, the first two fingers are opposite the other three and so make an efficient grasping hand. The long, sharp claws allow the koala to grip even the smoothest tree trunks. The claws are also used in defence.

**Babies** stay in their mothers' pouches for about six months. Then they climb onto their mothers' backs and ride there in safety for another six months. Within three to four years, the animals are mature and can breed. They may live for 20 years.

**Food.** Koalas usually feed on eucalyptus leaves, known in Australia as gum trees. They sometimes eat other plants, such as mistletoe and wattles. Of the more than 50 kinds of eucalypts recorded as food plants, some are more favoured by koalas than others. In South Australia, popular food trees are water gum, manna gum, and pink gum.

In Victoria, koalas prefer the manna gum. The trees grow throughout areas where koalas live (see Manna gum). Koalas also like swamp gum, messmate, mountain

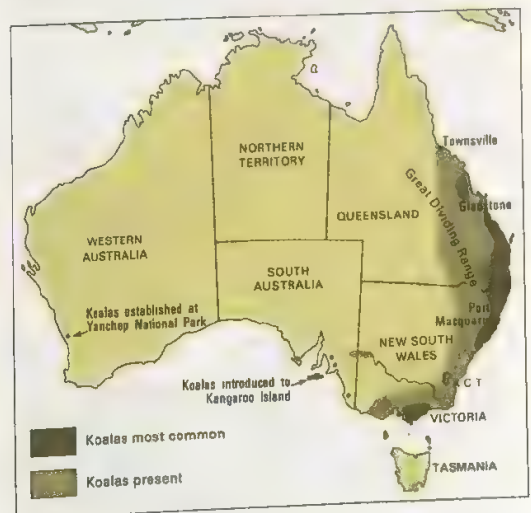
grey gum, and longleaved box. Favoured food trees in New South Wales are the grey gum and forest red gum. In Queensland, the forest red gum is the best liked by koalas. See *Eucalypts*.

**Koala diseases.** Many koalas in the wild die from bacterial infections. In some cases, the bacteria causes the eye complaint known as *conjunctivitis*, which sometimes leads to blindness. In other cases, the koalas may suffer from a condition known popularly as *wet bottom* when they have an infection in their genitals or urinary tract. Many female koalas become infertile because cysts develop in their ovaries following an infection of this kind.

Although the koala deaths first alarmed scientists in the 1980's, research showed that such diseases had been recorded among wild koalas for over 100 years. Some scientists thought that disease might have been introduced by the new animals brought to Australia by white settlers. Research shows that most deaths occur during food shortages caused by overcrowding. One solution to this problem has been massive planting of suitable trees to create corridors that will enable koalas to move freely over all of eastern Australia.

**Distribution.** Koalas live in many areas of the eastern coast of Australia, from North Queensland to southwestern Victoria. Koalas are found over most of southeastern Queensland. Most of the koalas in New South Wales are concentrated in coastal areas, north of Sydney. In Victoria, more than 8,000 koalas from islands in Westport Bay have been taken to the mainland and set free. They are now found through much of Victoria. Koalas never lived in Tasmania. Koalas living in Western Australia today have been introduced from elsewhere. Fossil remains found in caves in Western Australia show that koalas lived there in earlier times.

Koalas lived in South Australia until the early 1900's. They had probably died out by 1920. Introduced koalas now live on Kangaroo Island and several islands in the Murray River.



**Koalas** live in the forests of eastern Australia. They are found in significant numbers in only a few areas. Koalas have also been established at a national park in Western Australia.



**History.** Before the coming of the Aborigines, koalas flourished. Few enemies could follow them into trees, although young koalas may have been killed by tree goannas and powerful owls. Occasionally, when moving on the ground from tree to tree, koalas could have been caught by predators, such as the now-extinct Tasmanian tiger.

With the coming of the Aborigines, the koala had to contend with the people, who hunted them for food, and their hunting dog, the dingo, which could trouble koalas on the ground. It was not until about 10 years after the first European settlement in 1788 that the first reports of koalas were made. The first white settlers called the animal a *sloth*, but the Aborigines around the Sydney region called it *koala*, and this name soon came into common use. White settlers discovered the value of koala fur, and by the early 1900's, hundreds of thousands of koalas were killed. In 1920, a million animals were killed in Queensland during one year.

Heavy trapping, disease, and fires started by white settlers brought the koala near extinction over much of its range. It disappeared from South Australia, and only small remnants survived in Victoria and most of New South Wales. Queensland remained a stronghold until the end of the 1920's. Then, protection was removed, and a new slaughter began. Half a million koalas were killed in 1928. However, public outrage forced the Queensland government to give the animal protection once more.

Since that time, the koala has been making a slow, steady comeback. In Victoria, the wildlife authority captured small groups of animals and introduced them on offshore islands. There they were safe from all enemies, including people. These island populations thrived. More than 8,000 koalas brought from the sanctuary on Phillip Island and French Island in Westernport Bay were released in suitable reserves on the mainland. More than 50 places have been restocked in this way. Scientists now believe that the future of the koala is secure because of good conservation policies.

**Scientific classification.** The koala makes up the marsupial family, *Phascolarctidae*. It is *Phascolarctos cinereus*.

See also **Marsupial**.

**Kobe** (pop. 1,410,843) is one of the most important seaports of Japan. It stands on the south coast of Honshu Island. Kobe is near the eastern end of the Inland Sea. For location, see **Japan** (political map).

Kobe was built on a narrow, fan-shaped plain that stretches between the sea and a row of high mountains to the north. The mountains protect the city from severe winters. Kobe has long rows of docks, and is an important centre of heavy industry and shipbuilding. It also produces aircraft and textiles. Many people worship at the ancient Buddhist temple of Nofukuji, which houses a wooden statue carved about 794.

Kobe was founded in the 1100's. Commerce became important after Japan began trading with other countries in the mid-1800's. In 1956, construction of new buildings and repair of harbour facilities made Kobe the leading export and import centre of Japan. On Jan. 16, 1995, a major earthquake struck the Kobe area. It caused over 5,000 deaths and extensive property damage.

**Koblenz** (pop. 110,843), also spelled *Coblenz*, is an administrative, trade, and tourist centre on the Rhine River

in the German state of Rhineland-Palatinate (see **Germany** [political map]). The Moselle River empties into the Rhine River at Koblenz at a point of land called *Deutsches Eck*. The German Federal Archives are located in Koblenz. One of the oldest German communities, Koblenz began as a Roman fort around 9 B.C. The Ehrenbreitstein Castle in Koblenz is a popular tourist attraction. It was built sometime between A.D. 900 and 1100, destroyed in 1801, and rebuilt from 1816 to 1832. The old town centre of Koblenz was destroyed during World War II (1939-1945), but was restored in its traditional style.

**Koch, Christopher** (1932- ), an Australian writer, won the Miles Franklin Award in 1986 for *The Doubleman* (see **Franklin, Miles**). This novel is set in Hobart, Tasmania, and in Sydney. It explores the effects that belief in the occult have on its characters. Koch's other works include *The Boys in the Island* (1958), which describes the experience of growing up in Tasmania and the "big city" of Melbourne. *Across the Sea Wall* (1965) is set in Australia and India and tells of a young Australian's obsessive love for a Latvian girl. *The Year of Living Dangerously* (1978) presents a young Australian journalist's involvements in Jakarta during a time of political crisis. The novel won a number of prizes. It was made into a film of the same title. Koch collaborated on the script for the film.

Christopher John Koch was born in Hobart. He has lived in Europe, Asia, and the United States. He worked with the Australian Broadcasting Commission, becoming national supervisor of school programmes before he retired to write full-time.

**Koch, Robert** (1843-1910), a German doctor, established bacteriology as a separate speciality within medicine. He developed techniques of staining, incubating, and growing bacteria, the basis of the bacteriological study of infections. In 1876, he grew a pure strain of the anthrax bacillus and worked out a method of inoculation to prevent this disease in cattle (see **Anthrax**). In 1878, he published his thesis on the cause of infections due to injury. In 1882, Koch discovered the germ that causes tuberculosis (see **Tuberculosis**).

Koch won the 1905 Nobel Prize for physiology or medicine for his work on tuberculosis. He also introduced the technique of steam sterilization by dry heat, and identified the germ of Asiatic cholera.

Koch was born at Klausthal, Hanover, and studied medicine at Göttingen. In 1885, he was appointed a professor at the University of Berlin. Five years later, Koch announced his preparation of an extract from tubercle bacilli, called *tuberculin*, to be used in diagnosing cases of tuberculosis. Koch also studied blood infections among peoples in East Africa, and the sleeping sickness of West Africa. In India, he conducted research on bubonic plague. In 1891, Koch founded the Institute for Infectious Diseases in Berlin.

See also **Bacteriology; Medicine** (The scientific study of disease; picture: Anthrax germs).

**Köchel number.** See **Mozart, Wolfgang A.**

**Kocher, Emil Theodor** (1841-1917), a Swiss surgeon, is best remembered for his pioneering work on the thyroid gland. In 1878, he performed, for the first time, an operation for the removal of a *toxic goitre*, or enlarged thyroid gland. Kocher received the 1909 Nobel Prize for

physiology or medicine for his work on the physiology, pathology, and surgery of the thyroid gland. He also devised many surgical instruments and carried out important studies on coagulation of the blood and on the functions of the brain and spinal cord. Kocher was born in Bern. He was professor of surgery at the University of Bern from the age of 31 until his death.

**Kodak.** See Eastman, George; Photography (The beginnings of modern photography).

**Kodály, Zoltán** (1882-1967), was a Hungarian composer, music historian, and educator. Along with his friend, Hungarian composer Béla Bartók, Kodály promoted modern music and collected and studied the folk music of Hungary and its surrounding regions.

Kodály composed extensively for almost 70 years. His compositional style, like that of Bartók, is rooted in Hungarian folk idioms. Kodály's music, however, is less intellectually complex than Bartók's more advanced works.

Kodály believed strongly in the expressive capabilities of the human voice, and his compositions are characterized by the beauty and inventiveness of their vocal lines. His best-known works are *Psalmus hungaricus* (1923) and *Missa brevis* (1945), both for chorus and orchestra; and the orchestral suite (1927) from his opera *Háry János* (1926). Kodály's method of music education was based on the idea that choral singing is the easiest and most rewarding way for most people to learn about music. Kodály was born in Kecskemét.

**Koestler, Arthur** (1905-1983), was a Hungarian-born British novelist and essayist. His life and works reflect the political upheavals of the 1900's. Koestler was a Communist from 1931 to 1937. His most successful political novels, *Darkness at Noon* (1941) and *Arrival and Departure* (1943), express his rejection of dictators and Communism. Koestler's other political novels include *Spanish Testament* (1937) and *Thieves in the Night* (1946). *Arrow in the Blue* (1952) and *The Invisible Writing* (1954) are autobiographical.

Koestler was born in Budapest, Hungary. He worked as a foreign correspondent for German newspapers. Anti-Nazi, he left Germany in 1933. In 1937, Koestler was imprisoned by Francisco Franco's troops during the Spanish Civil War. In 1940, the Germans jailed him in France. He served as a volunteer in the French and British armies in World War II. He then settled in London and became a British citizen.

**Koffka, Kurt** (1886-1941), was an early exponent of Gestalt psychology (see Gestalt psychology). He opposed studying behaviour by reducing it to independent parts, which, when recombined, were supposed to equal the whole. Koffka did original studies in the perception of movement, in problems of seeing, and in the ways in which behaviour patterns develop in early years. Koffka was born in Berlin, Germany.

**Kohl, Helmut** (1930- ), is chancellor of Germany. He served as chancellor of West Germany from 1982 to 1990. He remained in office as chancellor of united Germany following the country's reunification on Oct. 3, 1990. Since 1949, Germany had been divided into two countries—West Germany and East Germany.

Kohl played a major role in the reunification of Germany. He supported close ties between West Germany and the United States and established new links with the Soviet Union before it ceased to exist in 1991. In domes-

tic economic policy, Kohl worked to stimulate free enterprise.

Kohl's government faced problems after reunification. Unemployment rose, especially in the eastern German states. Neo-Nazis and right-wing groups protested against immigration and made attacks on foreigners. Some critics argued that Kohl moved too slowly in reacting to the attacks.

Kohl was born in Ludwigshafen, Germany. He attended the University of Frankfurt and earned a Ph.D. in political science from Heidelberg University. Kohl was in the West German state parliament of Rhineland-Palatinate from 1959 to 1976 and was state prime minister from 1969 to 1976. He has served as chairman of the Christian Democratic Union since 1973. Kohl became a member of the West German Bundestag (lower house of parliament) in 1976.

Kohl became chancellor of West Germany in 1982. The Bundestag had voted to remove Helmut Schmidt from office and replace him with Kohl. Kohl remained chancellor of West Germany following elections in 1983, 1987, and of a unified Germany in 1994.

**Köhler, Wolfgang** (1887-1967) a psychologist, contributed to the development of Gestalt psychology. Gestaltists argue that behaviour is best understood when studied as an organized pattern rather than as separate parts. Köhler's pioneering studies of behaviour in apes showed the importance of perceptual organization and insight in learning. Born in Reval, Estonia, Köhler moved to Germany as a child. He studied and taught there until 1935, when he moved to the United States. See also Gestalt psychology; Learning (Insight learning).

**Kohlrabi** is a garden vegetable that is grown for its large, edible stem. The top of the stem is shaped like



Helmut Kohl



The kohlrabi plant has an edible, bulb-shaped stem.



a bulb and grows just above the ground. The flesh inside this bulb is often eaten raw in salads. It may also be steamed, boiled, or baked. The bulb looks and tastes somewhat like a turnip, though it is sweeter and more delicate. Kohlrabi is closely related to cabbage. Its name comes from the Latin words *caulis rapum*, meaning *cabbage turnip*.

Most varieties of kohlrabi are light green, though some are purple. The leaves grow on thin stalks from the bulblike part of the stem. When they are young and tender, the leaves may be eaten as greens. Kohlrabi is a good source of vitamin C. The plant grows best at temperatures between 16° and 18° C and matures in 50 to 60 days. Kohlrabi should be picked when the bulblike part is 5 to 8 centimetres in diameter.

**Scientific classification.** Kohlrabi is in the mustard family, Cruciferae (Brassicaceae). It is *Brassica oleracea*, variety *gongylodes*.

**Kokoda Trail** is a foot track across the Owen Stanley Ranges in Papua New Guinea. It runs from the highland town of Kokoda to the Sogeri Plateau, about 40 kilometres east of Port Moresby. It was a major line of invasion by Japanese forces in 1942, during World War II.

In July 1942, a large Japanese force landed at Buna and Gona, on the northeastern coast of Papua. They quickly pushed inland to the Kumusi River. A small mixed force of Australians and Papuans waited near the village of Kokoda. In the battle that followed, the Japanese won, lost, and then regained the village. They then pushed forward, driving the Australians back along the trail, across the Owen Stanley Range.

Both sides had to contend with hot steamy days, extremely cold nights, torrential rains, and appalling conditions underfoot, where the track was churned into mud. Also, neither of the armies was used to jungle warfare, especially where supply lines were strained and the countryside was steep and rugged. By September 17, the Japanese managed to press to within 50 kilome-

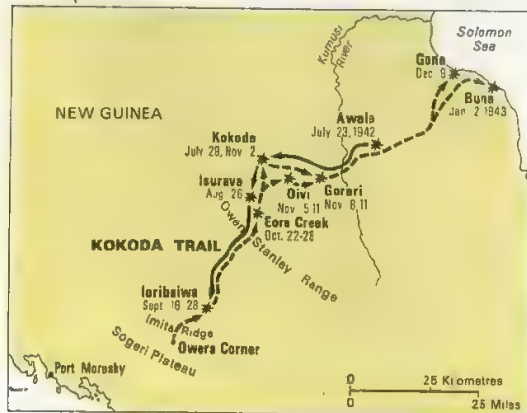
tres of Port Moresby. By this time, the Australians had halted at Imita Ridge, about 45 kilometres from Port Moresby. Here they were reinforced by fresh troops, including many veterans from the Middle East. On September 28, they attacked and reoccupied Ioribaiwa. From there, the Australians pressed forward steadily in spite of fierce opposition from the Japanese. On Nov. 2, 1942, they retook Kokoda. Twelve days later, they forced the Japanese back across the Kumusi River. During this engagement, the Japanese leader was drowned.

In December, Australian and American troops attacked Buna and Gona. A month later, they forced the Japanese to evacuate this part of Papua New Guinea. **Kokoschka, Oskar** (1886-1980), was an Austrian painter associated with the expressionist movement. Kokoschka painted his best-known pictures in a restless, energetic style that reflects a feeling of anxiety and agitation. He used broad brushstrokes and light colours. Kokoschka's painting *The Tempest* is reproduced in the Painting article.

Kokoschka was born in Pöchlarn, near Sankt Pölten. His first paintings were psychological portraits of friends and prominent individuals that skilfully capture the inner nature of the subject. About 1914, he became more interested in large symbolic paintings that reflect the influence of the Austrian baroque period of the early 1700's. Kokoschka travelled through Europe from 1924 to 1931, painting dramatic views of major cities, usually from an elevated viewpoint. He lived in Vienna from 1931 to 1934 when he was forced to flee because of his criticism of the Nazi Party in Austria. From 1938 to 1948

The Kokoda Trail was the scene of the Japanese invasion of New Guinea in 1942. The Australians halted the Japanese short of Port Moresby.

- Japanese advance
- - - Australian advance
- \* Major battle



Australian War Memorial, Canberra

Australian forces fought the Japanese on the Kokoda Trail. Both armies were unused to jungle warfare.



Oil painting on canvas, 1920; Albright-Knox Art Gallery, Buffalo, New York

**Kokoschka's View of the Thames** was one of several panoramic views of cities that the artist painted between 1924 and 1931. This painting shows the restless feeling and broad brushstrokes typical of Kokoschka's style.

Kokoschka lived in London, where he painted many historical and mythological subjects as well as landscapes. Kokoschka lived mainly in Switzerland after 1948.

**Kola nut**, also spelled *cola*, is the seed of several types of evergreen trees native to West Africa. Kola nuts are used in making soft drinks and medicines. The nuts contain the chemicals caffeine and theobromine, which have a mild, stimulating effect.

Kola nut trees have oblong, leathery leaves, yellow flowers, and star-shaped fruit. Each fruit contains several irregularly shaped, fleshy kola nuts. The nuts are white or red. They usually measure about 3.5 centimetres in length.

Many people who live in African countries chew kola nuts like chewing gum. They call them *guru* or *goora* nuts. Kola nuts are cultivated in Asia, South America, West Africa, and the West Indies.

**Scientific classification.** Kola nuts belong to the family Sterculiaceae. An important commercial species of kola nut is *Cola acuminata*.

**Kollwitz, Käthe** (1867-1945), was a German printmaker and sculptor whose work became known for its social protest themes. Kollwitz lived in a slum area of Berlin, and she championed the cause of the poor in her art. She became especially noted for her powerful woodcuts that feature roughly cut black and white shapes.

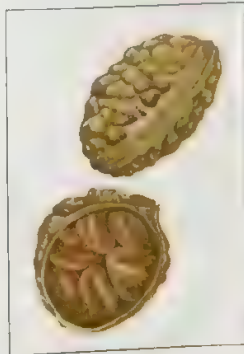
Kollwitz first gained recognition for two series of etchings, *The Weavers* (1893-1898) and *The Peasant War* (1902-1908). They depict historical events in which the

poor fought their oppressors. *Kollwitz' War* (1923), a series of seven wood-block prints, expressed a woman's reaction against the violence and destruction of war. The prints were inspired by the death of her son during World War I (1914-1918). Her most famous sculptures are a large war memorial called *The Mother and The Father* (1931-1932). The sculptures symbolize the grief of families of soldiers killed in war. Käthe Schmidt Kollwitz was born in Königsberg, Germany (now Kaliningrad, Russia).

**Köln.** See Cologne.

**Kommandatura.** See Berlin (History: World War II)

**Komodo dragon** is the largest living lizard. It grows more than 3 metres long. It is found on the island of Komodo and on other small islands of Indonesia.



Kola nuts



*The End* (1898), an etching and aquatint; National Gallery of Art, Washington, D.C.

**The Weavers** by Käthe Kollwitz was the artist's first important series of prints. The series portrayed the tragic results of a strike by impoverished German weavers against factory owners in 1840. The final print in the series, *above*, shows dead weavers being returned to their home after the violent end of the strike.





**Komodo dragons** are Indonesian lizards. They resemble legendary dragons and may grow to be over 3 metres long.

The Komodo dragon has strong claws and sharp, sawlike teeth. It can run quickly and is very strong. Komodo dragons can overpower and eat small deer, wild pigs, and even water buffaloes. A few human beings have been killed by these lizards. Komodo dragons spend most nights inside small caves that they have dug. Female Komodo dragons lay about 28 eggs at a time.

**Scientific classification.** The Komodo dragon belongs to the monitor family, Varanidae. It is *Varanus komodoensis*.

See also **Monitor**.

**Komondor** is a shepherd dog of Hungary. Komondors are all white. The dog's coat is allowed to mat and fall into long cords. Komondors stand about 60 to 80 centimetres high and weigh from 35 to 60 kilograms. No one knows where the first komondor came from, but the Magyars brought komondors with them when they invaded Hungary in the late A.D. 800's.



The komondor has a long, matted coat.

**Kon-Tiki.** See Heyerdahl, Thor.

**Kongo** was an African kingdom that lasted from the 1400's to the early 1700's. It included parts of what are now Angola and Zaire and, probably, a small part of Congo.

The Kongo had a well-organized government. A hereditary chief ruled each village. Each *district* (group of villages) was ruled by a chief chosen by the king or the governor of the province in which the district was located. By 1500, the Kongo was divided into six provinces, each ruled by a governor. The king, called the *Mani-Kongo*, had political and religious power. He had no standing army, so he needed a strong personality to keep the kingdom together. Mbanza, near what is now Damba, Angola, was the Kongo's capital.

Portuguese explorers reached the coast of the Kongo in 1482. They went inland and converted some Kongolese, including King Nzinga a Nkuwa, to Christianity. At first, relations between the Kongolese and the Portuguese were good. But beginning in the early 1500's, the Portuguese enslaved many Kongolese and made them work in Portuguese colonies. King Nzinga Mbemba (also called Affonso I) asked King John III of Portugal to stop the slave traders, but John did nothing. By the early 1600's, the slave trade had weakened the Kongo, and the kingdom was breaking apart. Local Kongolese chiefs, encouraged by Portuguese traders, rebelled, and some provinces declared their independence.

Portugal invaded the Kongo in 1665. The invaders defeated the king's forces and killed him and many members of the nobility. By 1710, the kingdom had broken up into several small provinces.

See also **Nzinga a Nkuwa**.

**Konoye, Prince** (1891-1945), Fumimaro Konoye, was a prominent Japanese statesman in the years immediately before World War II (1939-1945). Although he was a leading moderate, Konoye's willingness to compromise with the militarist extremists helped them accomplish their war aims. Shortly after he first became premier in 1937, Japan attacked China. Konoye sought a compromise with the United States in 1940. But he gave way in 1941 to General Hideki Tojo's Cabinet, which led Japan into World War II.

Konoye was born in Tokyo, a member of one of Japan's most aristocratic families. He became president of the House of Peers in 1933. Konoye helped bring about the Japanese surrender in World War II in 1945, but was named a war-criminal suspect and took poison. **Konrads** is the family name of two Australian swimming champions, brother and sister. They were born in Latvia, and migrated to Australia in 1949. They later became naturalized Australians. The two of them, Jon and Ilsa, came to be known as the *Konrads Kids*.

**Jon Konrads** (1942- ) held every world free-style record from 200 metres to 1,650 yards (1,509 metres) in 1959. He began training with swimming coach Don Talbot in 1953. At 15, he held six world records. At the Australian championships of 1959, he won all the men's free-style events. At the 1960 Olympic Games, he won the 1,500-metre free-style event. Later, he became a coach.

**Ilsa Konrads** (1944- ) began swimming at a migrant hostel in the New South Wales town of Urquinty. She also trained under Don Talbot, beginning in 1953. When she was only 13, she held two world rec-

ords. She eventually broke all the world records for women's free-style between 400 metres and 1,650 yards (1,509 metres).

**Kookaburra** is a large woodland kingfisher that lives in Australia and New Guinea. A kookaburra's call sounds like a loud laugh, and so the bird is sometimes called the *laughing jackass*.

**Description.** The *laughing kookaburra* is about 45 centimetres long. It is the largest kingfisher in the world. Most males are slightly smaller than the females. The laughing kookaburra has a brown back. Its tail is brown, barred with black. The head is white, with brown streaks on the crown. There is a brown line through and behind the eyes. The wings are brown and light blue. A white patch at the base of the flight feathers is readily seen in flight. The underparts are white, with grey bars.

The *blue-winged kookaburra* is slightly smaller than the laughing kookaburra. It has a larger bill. It can be distinguished by its white eyes and by the fact that it has no brown line through the eyes.

**Calls.** The purpose of the kookaburra's well-known laughing call is to proclaim ownership of their territories. Neighbouring pairs of families defend their territories against each other by ritualized displays.

Besides the territorial laughing call, kookaburras use other calls to communicate with other members in the territory. They use a chuckle as a contact call. A cackle

indicates aggression and attack. A squawk is a food-begging call, directed by the young towards the parent birds. In a quieter form, the squawk is used by the female when inviting the male to mate with her.

**Breeding** takes place from September to January. The nest, usually a hollow in a tree, may be further hollowed out to make it suitable for nesting. A hole may be tunnelled in a termite nest in a tree. Less frequently, the birds choose a nest site in a bank, cliff face, or building. Kookaburras will also use nest boxes. In the bottom of the hollow, without any special nest lining, the female lays two to four rounded white eggs. The eggs measure about 35 by 45 millimetres.

**Food.** Kookaburras' food consists mainly of lizards, snakes, and insects. They also eat crabs, crayfish, earthworms, and fish, and sometimes birds and small mammals. Usually, the birds sit on perches, observing the ground, ready to pounce on any insect or other animal.

**Distribution.** Kookaburras live in eucalyptus forests in eastern Australia, from Cape York in the north to the Eyre Peninsula in South Australia. In 1897, they were introduced into southwestern West Australia, where they are now well established. They have also been introduced to Tasmania and Kangaroo Island. They do not seem to need to drink water and can live in dry areas.

Blue-winged kookaburras live from Brisbane north to Cape York, through northern tropical Australia south to Sharks Bay, in Western Australia. They also live in New Guinea. In eastern Queensland, laughing and blue-winged kookaburras live together. The two species may be seen on the same telephone wire, searching for food in the cane grass below. But they keep their territories separate when breeding.

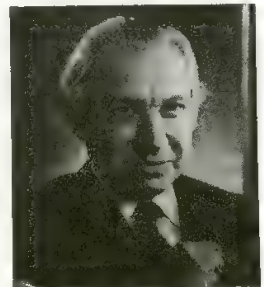
**Scientific classification.** Kookaburras belong to the Kingfisher family, Alcedinidae. The laughing kookaburra is *Dacelo novaeguineae*. The blue-winged kookaburra is *D. leachii*.

See also **Bird** (picture: Birds of Australasia); **Kingfisher**.

**Kopeck** is a Russian coin of brass. It was originally made of silver. The kopeck is equal to one hundredth of a rouble. See also **Rouble**.

**Koran.** See **Quran**.

**Korda, Sir Alexander** (1893-1956), was a Hungarian-born film producer and director who introduced Hollywood methods into British film studios. Of the films that he directed, the best were probably *The Private Life of Henry VIII* (1933), *Rembrandt* (1936), and *Lady Hamilton* (1941). The films that he produced included *The Scarlet Pimpernel* (1934), *Things to Come* (1936), *Elephant Boy* (1937), and *The Third Man* (1949). After World War II (1939-1945), Korda concentrated mainly on financial and organizational work. He owned British Lion, a film distributing company. He was born and educated in Hungary. He made films in Budapest, Paris, and Berlin before going to Hollywood. After several years there, he settled in Britain in 1932. He was knighted in 1942.

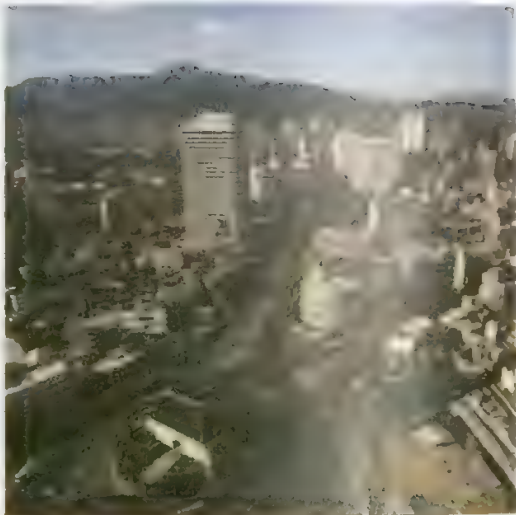


Sir Alexander Korda



Kookaburras eat lizards and other reptiles, as well as insects, earthworms, crayfish, rodents, and young birds.





**Pyongyang and Seoul**, the capitals of North and South Korea, have grown rapidly since the 1950's. Pyongyang, *left*, with its skyscrapers and broad boulevards, has become North Korea's most modern city. Seoul, *right*, is the cultural, economic, and educational centre of South Korea.

## Korea

**Korea** is a land in eastern Asia that consists of two states. One is the Republic of Korea—usually called South Korea. Seoul is its capital and largest city. The other is the Democratic People's Republic of Korea—commonly called North Korea. Pyongyang is its capital and largest city. North Korea has a Communist government. South Korea has a government that is strongly anti-Communist.

North and South Korea lie on the Korean Peninsula, which extends south from northeastern China. North Korea covers the northern half of the peninsula, and South Korea occupies the southern half. North Korea is slightly larger in area than South Korea, but the South has about twice as many people living within its borders as the North does.

Plains stretch along the western, northeastern, and southern coasts of Korea. Mountains cover most of the rest of the peninsula. Islands dot the northeastern coastline of North Korea, and the southern and southeastern coast of South Korea. Most of the Korean people by far live on the coastal plains or in river valleys.

Until the early 1900's, Korea's economy was based entirely on agriculture, and virtually all Koreans worked as farmers. Since that time, the country has undergone a major transformation. Today, industry is far more important than agriculture in both North and South Korea. South Korea's industrial development, especially in the field of electronic and electrical items, has helped make it into one of the fastest-growing economies in the world.

Scientists have evidence that people lived in what is now Korea at least 30,000 years ago. Various Korean and foreign states ruled the Korean peninsula from ancient

times to the 1900's. Korea was a colony of Japan from 1910 until World War II ended in 1945. After Japan's defeat in the war, Korea was split in two. The separate governments of South and North Korea were formed in 1948.

Communists had gained control of the North in 1945. In 1950, North Korean troops invaded South Korea. This action started the Korean War, which was part of the Cold War struggle between Communist and non-Communist nations. The Korean War ended in 1953. But neither North nor South Korea won a complete victory, and a permanent peace treaty has never been signed. See **Korean War**.

Since the war, small-scale fighting between South and North Korea has occasionally taken place. Since the early 1970's, representatives of the two states have held discussions from time to time about reunifying Korea, but they have brought in little change. In 1991, a series of talks resulted in several agreements, including a pact in which the North and the South agreed not to use force against each other. This pact represented the most significant development in North-South relations since the division of Korea.

### Government

**South Korea.** According to its Constitution, South Korea is a republic. The Constitution calls for the election of national government leaders by the people. The Constitution guarantees such rights as freedom of the press and religion. But the government can also limit freedom. See *South Korea* in the *History* section of this article.

**National government.** The president of South Korea

is both the head of state and the head of the government. The people elect the president to a five-year term. The president cannot be reelected. The president appoints a prime minister, who carries out the operations of the government. The president also appoints 15 to 30 State Council members, who head government departments. South Korea's legislature, called the National Assembly, has 299 members. Voters elect the members of the National Assembly to four-year terms. South Koreans 20 years old or older may vote.

**Local government.** South Korea has nine provinces and five cities—Inchon, Kwangju, Pusan, Taegu, and Taejeon—that have the same status as provinces. Seoul has a special status similar to that of a province. Each province is divided into two kinds of government units—cities and counties. The president appoints mayors, provincial governors, and other high-ranking local officials. In 1991, elections were held for members of local governmental councils. They were the first local elections held in South Korea since the early 1960's.

**Politics.** The Democratic Liberal Party, formed from three separate parties in 1990, is the strongest political party in South Korea. Its members hold more National Assembly seats than any other political party, and they hold most other national government offices. The main opposition party is the Democratic Party.

**Courts.** The Supreme Court, South Korea's highest court, consists of a chief justice and up to 13 other justices. The president appoints the chief justice—and the other justices, who are recommended by the chief justice—with the approval of the National Assembly. Supreme Court justices serve six-year terms. South Korea has a Constitution Court that rules on such questions as the constitutionality of laws. Other courts include appeals courts, district courts, and a family court.

**Armed forces.** The armies of both South and North Korea are among the world's largest. The South Korean army has about 650,000 members. South Korea also has a navy of about 60,000 and an air force of about 40,000.

## Facts in brief about Korea

### South Korea

**Capital:** Seoul.

**Official language:** Korean.

**Official name:** *Taehan-minguk* (Republic of Korea).

**Area:** 99,263 km<sup>2</sup>, including islands and excluding the 1,262-km<sup>2</sup> demilitarized zone. *Greatest distances*—north-south, 480 km; east-west, 298 km. *Coastline*—1,318 km.

**Elevation:** *Highest*—Halla-san (Halla Mountain), 1,950 m above sea level. *Lowest*—sea level.

**Population:** *Estimated 1996 population*—45,516,000; density, 459 people per km<sup>2</sup>; distribution, 78 per cent urban, 22 per cent rural; *1990 census*—43,520,199. *Estimated 2001 population*—47,174,000.

**Chief products:** *Agriculture*—apples, barley, Chinese cabbage, melons, onions, potatoes, rice, soybeans, sweet potatoes. *Manufacturing*—cars, chemicals, clothing, computer equipment, electric appliances, iron and steel, machinery, plywood, processed foods, rubber tyres, ships, shoes, television sets, textiles. *Mining*—coal, tungsten. *Fishing*—filefish, oysters, pollock.

**Money:** *Currency unit*—won. One won = 100 chon.



North Korea and South Korea lie on a peninsula that extends south from northeastern China. The Sea of Japan lies to the east and the Yellow Sea to the west. A narrow channel called the Korea Strait separates South Korea from Japan.

The government may conscript men 17 to 30 years of age for 2½ to 3 years of service. Women join the armed forces on a volunteer basis.

**North Korea.** The North Korean Constitution gives political power to the people. But the country's Communist Party, called the Korean Workers' Party, holds the real political power within the country. The Constitution guarantees such rights as freedom of the press, religion, and speech. But the North Korean people have almost no real freedom. The Communists maintain strict control over all aspects of life to ensure their dominance of the country.

**National government** of North Korea is headed by a president. The North's most powerful policymaking body is the Central People's Committee. The president

### North Korea

**Capital:** Pyongyang.

**Official language:** Korean.

**Official name:** *Choson-minjujuui-inmin-konghwaguk* (Democratic People's Republic of Korea).

**Area:** 120,538 km<sup>2</sup>, including islands and excluding the 1,262-km<sup>2</sup> demilitarized zone. *Greatest distances*—north-south, 595 km; east-west, 515 km. *Coastline*—1,070 km.

**Elevation:** *Highest*—Paektu-san (Paektu Mountain), 2,744 m above sea level; *Lowest*—sea level.

**Population:** *Estimated 1996 population*—24,307,000; density, 202 people per km<sup>2</sup>; distribution, 61 per cent urban, 39 per cent rural. *Estimated 2001 population*—26,248,000.

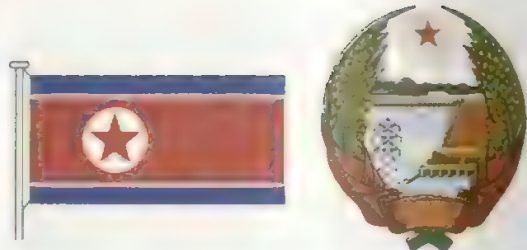
**Chief products:** *Agriculture*—barley, maize, millet, potatoes, rice, wheat. *Manufacturing*—cement, chemicals, machinery, metals, processed foods, textiles. *Mining*—coal, iron ore, magnesium, phosphates, salts, tungsten. *Fishing*—pollock, sardines, shellfish, squid.

**Money:** *Currency unit*—won. One won = 100 zeuns.





**Symbols of South Korea.** The South's flag and coat of arms feature a red and blue circle. This ancient Asian symbol represents the balance in the universe between opposites—such as night and day, and life and death.



**Symbols of North Korea.** The North's flag and coat of arms have a red star that represents Communism. Rice and an electric power plant on the coat of arms stand for the importance of agriculture and industry to the North.

of the country heads the committee. The Central People's Committee varies in size, but it usually has about 20 members. North Korea's legislature, called the Supreme People's Assembly, elects the committee members. But these officials, who are all high-ranking members of the Communist Party, really hold office on the committee because of their positions in the party.

A body called the State Administrative Council is responsible for carrying out government policies. It is headed by a premier, who is appointed by the Supreme People's Assembly. Its other members consist of the heads of government ministries and commissions, who are appointed by the Central People's Committee.

The Supreme People's Assembly has 687 members, elected by the people to four-year terms. According to the Constitution, it is North Korea's highest government authority. But the legislature has little power. It meets only one or two weeks a year and functions according to the wishes of the Communist Party.

**Local government.** North Korea has nine provinces. Four cities—Chongjin, Hamhung, Kaesong, and Pyongyang—have the status of provinces. Smaller political units include cities, counties, towns, villages, and workers' settlements. The people of each unit elect a people's assembly that directs the local government.

**Politics.** The Korean Workers' Party is the ruling party

of North Korea. Fewer than 15 per cent of the people belong to the party. Even so, the party makes the country's laws, chooses all candidates for elections, and approves all people appointed to public office.

**Courts.** The Central Court is North Korea's highest court. Its justices are chosen by the Communist Party and elected by the Supreme People's Assembly. Other courts in North Korea include provincial courts and people's courts.

**Armed forces** of North Korea consist of a 1 million-member army, an air force of about 50,000 members, a navy of about 40,000, and local militia forces with up to 5 million members. Militia members serve part-time.

The North Korean government conscripts men 20 to 25 years old for military service. Members of the army must serve 5 to 8 years. The air force requires 3 to 4 years of service, and the navy requires 5 to 10 years. Women join the armed forces on a volunteer basis.

**People**

**Ancestry.** Scientists have evidence that people had settled in what is now Korea by at least 30,000 years ago. They came from regions to the north and northwest. It is not known when the ancestors of the Korean people arrived in the peninsula. They may have come from the north about 5,000 years ago.

**Korea map index**

Cities of South Korea			North Korea		
Andong	114,340	H 5	Anak	35,000	F 2
Anmyang	34,729	I 5	Anju	40,000	D 2
Anson	27,715	G 4	Aoji	90,000	A 6
Anyang	361,530	G 4	Chaeryong	45,000	F 3
Bucheon	456,318	G 3	Chonglin	754,128	B 6
Changhang	26,171	H 3	Chongju	50,000	D 2
Changhung	27,230	I 4	Chongshong	50,000	A 6
Changsong	26,746	I 3	Haeju	131,000	F 3
Changwon	173,543	I 5	Hamhung	525,000	D 4
Chechon	102,309	G 3	Hoeryong	45,000	A 6
Cheju	91,300	K 3	Hwangon	45,000	D 2
Chinhae	121,406	I 5	Hwangju	31,000	E 3
Chinju	227,441	I 4	Hyosan	65,000	B 5
Cheochwon	29,194	H 4	Kaesong	345,642	F 3
Chomchon	41,714	H 5	Kanggye	90,000	C 2
Chonan	170,088	H 4	Kangso	75,000	C 6
Chongdo	25,605	I 5	Kilchu	281,000	E 2
Chongju	350,279	H 4	Kowon	75,000	E 4
Chungju	54,887	I 3	Kujang	30,000	D 3
Chunju	426,498	I 4	Kumchon	30,000	F 2
Chumjin	34,184	F 5	Kusong	35,000	D 2
Chunchon	163,217	F 4			
Chungju	113,345	G 5			
Chungmu	87,485	I 5			
Chungyang	25,415	H 4			
Haenam	26,783	I 3			
Hallim	24,107	K 3			
Hamyang	26,783	I 4			
Hongseong	26,988	H 3	Pohang	261,256	H 6
Incheon	387,491	G 3	Polgyo	38,241	I 4
Iri	192,275	H 4	Puan	27,184	I 3
Kanggyong	23,668	H 4	Pukpyong	37,129	G 5
Kangjin	23,659	I 3	Pusan	3,516,807	J 5
Kangju	132,995	F 5	Puyo	31,198	H 4
Kimchon	77,271	H 5	Pyonglaek	60,842	G 4
Kimhae	77,925	I 5	Samchok	42,606	G 5
Kimje	35,939	I 3	Samchonpo	38,900	J 4
Kochang	41,656	I 3	Sammye	21,569	H 4
Kochang	23,725	I 4	Sangju	26,200	H 4
Kongju	39,759	H 4	Sauli	9,645,932	G 4
Kosong	27,116	I 5	Sintaein	20,000	I 4
Kumi	142,148	H 5	Sogwi	53,296	K 3
Kumsan	28,970	H 4	Sokcho	65,798	F 5
Kunsan	185,661	I 3	Songjiong	32,300	I 4
Kuryongpo	31,758	H 3	Songnam	447,839	G 4
Kwangchon	24,629	H 3	Songtan	66,369	G 4
Kwangju	906,129	I 5	Sosan	38,100	H 3
Kwangmyong	219,592	J 5	Sunchon	121,938	I 4
Kwangyang	26,375	J 4	Surwon	430,834	G 4
Kyongju	127,684	I 6	Taecheon	42,285	H 4
Kyongsan	30,626	I 5	Ulsan	2,030,672	I 5
Masan	449,247	I 5	Ulsan	866,695	H 4
Miryang	42,939	I 5	Togyne	42,660	G 5
Mokpo	236,078	J 3	Tongduchon	68,622	F 4
Mukhe	55,161	G 5	Ullongbu	162,701	F 4
Naju	30,848	J 3	Ulsong	26,466	H 5
Namwon	61,447	I 4	Ulsan	551,320	I 6
Nonsan	30,833	H 4	Waegwan	31,051	H 5
Okchon	26,134	H 4	Wonju	151,372	G 5
Onyang	41,459	H 4	Yechon	27,578	H 5
Yongsong	45,000	S 6	Yesan	35,722	H 3
Naengsan	30,000	D 3	Yongchon	53,205	H 5
Manpo	85,000	C 5	Yongdong	26,590	H 4
Mundok	30,000	E 5	Yongju	84,886	H 5
Musan	60,000	E 6	Yongsampo	25,985	J 3
Najin	70,000	A 2	Yongwol	31,632	G 5
Namno	691,284	E 2	Yonmu	32,728	H 4
Onghu	45,000	F 2	Yosu	171,929	J 4
Onsong	75,000	A 4			
Oro	35,000	D 3			
Pakchon	34,000	D 3			
Panmunjom	35,000	F 4			
Pukchang	35,000	D 3			
Pukchang	45,000	D 3			
Pyeongnam	40,000	F 3			
Pyeongyang	2,639,448	E 2			
Sachul	30,000	F 2			
Sariwon	40,000	D 2			
Sinaju	50,000	D 2			
Sinpo	85,000	D 2			
Sinuiju	500,000	D 3			
Songnim	96,000	E 3			
Sunchon	50,000	D 2			
Taecheon	60,000	D 2			
Tokchon	35,000	D 2			
Uiju	35,000	A 6			
Unggi	25,000	E 2			
Wonsan	350,000	E 2			
Yonju	30,000	D 2			
Yonan	35,000	D 2			
Yongampo	30,000	D 2			
Yongyon	30,000	E 2			
Yongyang	46,000	D 4			

\*Does not appear on map; key shows general location.  
Sources: South Korea—1985 census for largest cities, 1975 census for all other places. North Korea—1984 estimates from Korean National Unification Board for largest cities, 1971 estimates for all other places from William E. Henthorn.

**Korea Political map**

Legend:

- National park N.P.
- Railway
- International boundary
- National capital
- Motorway
- Provincial capital
- Road
- Other city or town

Geographical Labels:

- CHINA** (North)
- RUSSIA** (North-East)
- JAPAN** (East)
- Sea of Japan** (East)
- Yellow Sea** (West)
- Choeu Strait** (South)

**North Korea:** Pyongyang (National Capital), Hamhung, Wonsan, Chongju, Kaesong, Haeju, Sinuiju, Chongchong, Jangju, Khabang, Chongju, Wonsan, Chongju, Kaesong, Haeju, Sinuiju, Chongchong, Jangju, Khabang.

**South Korea:** Seoul (National Capital), Incheon, Suwon, Chongju, Taegu, Pusan, Kwangju, Chonju, Tainju, Masan, Ulsan, Kyungju, Pohang, Taegu, Chongju, Taegu, Pusan, Kwangju, Chonju, Tainju, Masan, Ulsan, Kyungju, Pohang.

Scale: 0 to 600 Miles / 0 to 600 Kilometers.

124° East Longitude





**Housing styles in North and South Korea** differ greatly. Most North Koreans live in apartment buildings, such as these in Pyongyang, *far left*. Many South Koreans live in traditional-style houses, *left*, with tile roofs.

**Population.** For the total populations of North and South Korea, see the *Facts in brief* tables with this article. About 75 per cent of South Koreans and about 60 per cent of North Koreans live in cities or towns.

Twelve South Korean cities have more than 400,000 people. The largest city is Seoul, with a population of about 10 million. Pusan, the second largest city in South Korea, has about 3½ million people. Five cities in North Korea have more than 400,000 people. Pyongyang, with more than 2½ million people, is the largest city.

Most Koreans have broad faces, straight black hair, olive-brown skin, and dark eyes that appear slanted because of an inner eyelid fold. These people make up almost the entire population of Korea. People of Chinese descent are Korea's largest minority group.

**Language.** Korean is the official language of South and North Korea. Scholars classify it in the same language family as Japanese, but Korean is unlike any other language. About half of all Korean words come from Chinese. Korean has about six major *dialects* (local forms). Most Koreans understand all the dialects.

The Korean alphabet, called *hangul*, has 24 letters. South Koreans use some Chinese symbols in addition to *hangul* in their writing. North Koreans use only *hangul*.

### Way of life

Before the 1900's, Korea was an agricultural society built on strong family ties. Almost all the people lived in small villages and worked on farms. In many families, several generations lived together. The oldest male served as head of the family, and all people were expected to obey their elders without question.

This way of life began to change after Japan seized control of Korea in 1910. The Japanese brought industry to Korean cities and took much farmland away from the farmers. As a result, many young Koreans moved to the cities to work. The way of life changed even more after Korea's division in the 1940's. In the North, the Communists took steps to make the country an industrial society and to weaken the importance of family ties. In the

South, economic and political ties with Western nations have brought South Koreans under the influence of Western customs.

**City life.** Changes in both North and South Korea since the 1950's have led to a rapid increase in the proportion of city dwellers. South Koreans are attracted to cities because of the opportunities there. Factories and businesses provide jobs. The cities have colleges and universities, better health-care facilities, and a variety of entertainment.

Many high-rise apartment buildings and modern houses have been built in Seoul and other large South Korean cities. But it has been difficult to meet the rapidly rising need for housing, and many people have been forced to live in distant suburbs under poor conditions. The rise in population has also strained such public services as water, sewerage, and transportation. The crime rate in the cities has increased sharply. In addition, the number of cars has risen rapidly since the 1960's. Traffic jams are frequent, and major cities suffer from a severe pollution problem.

Most city dwellers in North Korea work in factories. The majority of them live in one- or two-room apartments built since Korea's division. Few city people besides high-ranking government officials have houses. Pyongyang is North Korea's most modern city, with skyscrapers, broad boulevards, cultural centres, and sports stadiums. However, it has few restaurants or places of entertainment. Few North Koreans own cars.

**Rural life.** Most South Koreans, including those in rural areas, live in houses made of bricks or concrete blocks, with roofs of cement tiles and slate. Many houses are two or three storeys, though such houses are less common in rural areas than in the cities. Most houses have *ondol*—floors of thick stone slabs covered by oiled papers or mats. Traditionally, channels under the floors carried hot air from the kitchen or an indoor fireplace to heat the rooms. In many homes today, pipes carry heated water under the floors to provide heat. In the cities, many *ondol* are heated by electric coils. Al-

most all rural homes also have electricity. The use of Western-style beds, tables, and sofas is spreading.

The South Korean government maintains a campaign to improve roads, irrigation, and living conditions in rural areas. Most farmers have modern farm machinery.

After the division of Korea, the Communists in the North built many apartments on *collective farms* in rural areas. All North Korean farmers work on such farms, which are operated cooperatively by a large group of farmers. Most farming is done with modern machinery, and virtually all homes have electricity.

**Clothing.** Western clothing styles have become popular in both North and South Korea. But many people in rural areas and some in the cities still wear traditional styles. Women tend to wear colourful traditional clothing more often than men. Most traditional clothing is made of cotton material. Traditional clothing for women consists of a long, full skirt that extends below the knees and a tight-fitting jacket. The men wear loose-fitting trousers, shirts, and jackets.

**Food and drink.** Rice is the basic food of most Koreans. Other common foods include barley; fish; such fruits as apples, peaches, pears, and melons; and such vegetables as beans, potatoes, and sweet potatoes. One of the most popular dishes other than rice is *kimchi*, a highly spiced mixture of Chinese cabbage, white radishes, and several other vegetables. Consumption of meat and dairy products is small but increasing.

Tea is a traditional drink in Korea, but many Koreans drink coffee. Adults drink *soju*, a distilled alcoholic beverage usually made from grain, as well as *ch'ongju*, known in the West as *sake* or rice wine. In the rural areas, a home-brewed drink known as *makkolli*, made from rice, has also been popular. Young adults frequently drink beer.

**Recreation.** South Koreans enjoy most sports common in the West, including baseball, boxing, golf, soccer, table tennis, tennis, and wrestling. They also enjoy such martial arts as *judo* and *tae kwon do*. Television and radio broadcasts of local and national athletic meetings attract a wide audience. Each year, South Korea holds a National Sports Festival. In North Korea, the gov-



**Buddhism** has had a strong influence on Korean culture. Today, many South Koreans, such as these monks, follow Buddhism. North Korea discourages the practice of religion.

ernment operates gymnasiums and promotes participation in organized sports.

South Korean cities and towns have many cinemas and theatres for plays, and concerts. Korean and foreign films are popular. Orchestras perform classical and contemporary Western music. Television networks regularly show dramas and comedies. In North Korea, most forms of entertainment are supported and controlled by the state. The cities have cinemas and theatres for drama and opera. Drama groups travel throughout the country to perform for workers in rural areas. Both North and South Koreans enjoy reading novels, short stories, and poems.

**Religion.** The government of South Korea permits complete freedom of religion. The North Korean Consti-



**Traditional Korean music** features several types of stringed instruments as well as drums, flutes, and gongs. These South Korean musicians, members of the National Classical Music Institute, are playing copies of instruments used hundreds of years ago.



tution guarantees religious freedom. But the government discourages religion because it conflicts with the teachings of Communism.

Confucianism, which is more a philosophy than a religion, traditionally has been the most widely followed set of beliefs in Korea. It stresses the need for people to develop moral character and responsibility toward themselves and each other. Today, most South Koreans—no matter what religion they follow—believe in at least some of the teachings of Confucianism. For example, most families in the South follow the Confucian practice of honouring their ancestors in special ceremonies. About 20 per cent of South Koreans are Buddhists, about 18 per cent are Protestants, and about 3 per cent are Roman Catholics. See **Buddhism**; **Confucianism**.

**Education.** Since the late 1940's, South and North Korea have made special efforts to improve their educational systems. As a result, the percentage of Koreans who can read and write increased from less than 50 per cent in the mid-1940's to more than 90 per cent in the early 1990's.

**South Korea.** South Korean law requires that all children complete primary school. State primary schools in South Korea are free.

After completing primary school, a South Korean student may go on to attend middle school and then high school. Parents must pay tuition for state as well as private secondary schools. Nevertheless, about 80 per cent of children aged 12 to 17 attend secondary school. Technical training, which prepares students for industrial jobs, begins in the middle schools and continues through all higher levels of education.

Qualified high school graduates may enter one of South Korea's more than 250 college-level schools. These schools provide training in a wide variety of subjects. More than 1 million students attend universities, colleges, and junior colleges in South Korea.

**North Korea** requires children to attend school for 11 years, including a year of preschool. The state pays all educational expenses. Students must work for the state during part of the summer.

In North Korea, children progress from primary school to senior middle school. Students must have Communist Party approval to continue their education after senior middle school. Those who continue attend a two-year high school, a two-year general vocational school, or a three- or four-year technical school that provides training for engineering and scientific jobs. Students who finish high school or technical school may go to college immediately. Vocational school graduates must complete a year of special study before they enter college.

North Korea has one university—Kim Il Sung University in Pyongyang—and more than 200 specialized colleges. Each college offers training in one area, such as agriculture, engineering, or medicine. The government provides night schools for adults, training schools in factories, and courses for workers to take by mail.

**Arts.** Early Korean art developed under the influence of both Chinese art and the teachings of Buddhism and Confucianism. Popular themes included love of nature, respect for learning, and loyalty to the king. The most widely practised art forms included music, poetry, pottery, sculpture, and painting.



**Physical features**

Chaeryong River	.....	D	1	Oeyon (Island)	.....	E	2
Changjin River	.....	B	3	Paektu Mountain	.....	D	1
Cheju (Island)	.....	B	3	Paengnyong (Island)	.....	B	3
Cheju Strait	.....	G	2	Puksuak Mountain	.....	C	4
Chili Mountain	.....	C	2	Sea of Japan	.....	C	1
Halla Mountain	.....	C	2	Sinn'i (Island)	.....	C	1
Han River	.....	E	3	Sohuksan (Island)	.....	C	1
Hong (Island)	.....	F	1	Sojoson Bay	.....	E	2
Injin River	.....	D	2	Somjin River	.....	B	1
Kanghwa Bay	.....	D	2	Supung Reservoir	.....	C	2
Koje (Island)	.....	C	1	Taedong River	.....	C	3
Korea Bay	.....	C	1	Tokcho (Island)	.....	C	3
Korea Strait	.....	C	4	Tongloson Bay	.....	A	4
Kum River	.....	E	3	Turnen River	.....	D	4
Kyebang Mountain	.....	D	3	Ullung (Island)	.....	B	1
Mount Kwanmo	.....	C	2	Yalu River	.....	E	3
Myohyang Mountain	.....	A	4	Yellow Sea	.....	C	3
Naktong River	.....	E	3	Yonghung Bay	.....	E	1
				Yongil Bay	.....	E	4

In North Korea today, the government controls the work of artists. The government prohibits works of art that conflict with Communist principles. It encourages artists to show support in their work for the policies of the Communist Party.

South Korean artists are free from government control. In South Korea, artists work with traditional themes and with various forms of Western art. Western art has influenced all forms of South Korean art. This influence appears especially in the rapid development of Western forms of drama and of films since 1945.

### Land

The Korean Peninsula extends southward from north-eastern China. It is about 1,078 kilometres long and about 515 kilometres wide at its widest point. Korea's coastline measures 2,388 kilometres. More than 3,000 islands, which are part of Korea, lie off the southern and western coasts of the peninsula. The peninsula and the islands cover a total area of 220,817 square kilometres. The Sea of Japan, east of the peninsula, separates Korea from Japan. The Yellow Sea lies west of Korea, and the Korea Strait lies to the south.

Korea has six main land regions. They are (1) the Northwestern Plain, (2) the Northern Mountains, (3) the Eastern Coastal Lowland, (4) the Central Mountains, (5) the Southern Plain, and (6) the Southwestern Plain.

**The Northwestern Plain** stretches along the entire western coast of North Korea. Rolling hills divide the region into a series of broad, level plains. The Northwestern Plain has most of North Korea's farmland and its major industrial area, including Pyongyang. About half the North Korean people live in the region.

**The Northern Mountains** region, east of the Northwestern Plain, covers almost all of central North Korea. Forested mountains make up most of the region. These mountains are an important source of valuable minerals and forest products.

Korea's highest mountain, Paektu-san (Paektu Mountain), is in the Northern Mountains. It rises 2,744 metres on the border between North Korea and China. North Korea's longest river, the Yalu, flows westward from this



**The Southwestern Plain** covers almost the entire western coast of South Korea. Like many of Korea's coastal areas, it consists of rolling hills and plains that make fertile farmland.

mountain along the border for 789 kilometres to the Yellow Sea. The Tumen River forms the border eastward from Paektu-san to the Sea of Japan. Almost a quarter of North Korea's people live in the Northern Mountains region.

**The Eastern Coastal Lowland** covers almost all of North Korea's east coast. This strip of land between the Northern Mountains region and the Sea of Japan consists of a series of narrow plains separated by low hills. The plains provide much farmland, and the sea makes fishing important in the region. The Eastern Coastal Lowland also has some industrial areas. More than a quarter of North Korea's people live in this small but heavily populated region.

**The Central Mountains** region extends throughout most of central and eastern South Korea and into a small part of southern North Korea. Forested mountains cover most of the region, including much of the seacoast. River valleys, hillsides, and some land along the coast are used for farming. The coastal waters yield large amounts of fish. More than a quarter of the South Korean people live in the Central Mountains region.



**The Northern Mountains** region extends across almost all of central North Korea. Forested mountains cover most of the region. This rugged land is an important source of minerals and forest products.



**The Southern Plain** covers the entire southern coast of South Korea. This important agricultural region consists of a series of plains separated by low hills. Pusan, an important industrial centre of South Korea, is located in the region. The Nakdong River, which is 523 kilometres long, is South Korea's longest river. It flows through the Southern Plain from mountains in the north to the Korea Strait. Almost a quarter of the South Korean people live in the region.

**The Southwestern Plain** extends along almost the entire western coast of South Korea. Like much of the rest of coastal Korea, this region consists of rolling hills and plains and is a farming centre. It also includes the South's major industrial area, around Seoul. The Han River flows through the region from mountains in the east to the Yellow Sea. About half of South Korea's people live in the region.

**Islands.** Korea has more than 3,000 islands, most of which are unpopulated. People live on the larger ones. Cheju Island, about 80 kilometres south of the peninsula, is the largest island. It covers about 1,800 square kilometres. Cheju has its own provincial government. The other islands are governed by mainland provinces. South Korea's highest mountain, Halla-san (Halla Mountain), rises 1,950 metres on Cheju Island.

### Climate

Seasonal winds called *monsoons* affect Korea's weather throughout the year. A monsoon blows in from the south and southeast during the summer, bringing hot, humid weather. A cold, dry monsoon blows in from the north and northwest during the winter, bringing cold weather.

Summer weather varies little throughout Korea. July temperatures average between 21 °C and 27 °C. Korea's massive mountains protect the peninsula's east coast from the winter monsoon. As a result, the east coast generally has warmer winters than does the rest of Korea. Average January temperatures range from about 2 °C in southeastern Korea to about -21 °C in parts of the Northern Mountains region.

Most of South Korea receives from 76 to 130 centimetres of *precipitation* (rain, melted snow, and other forms of moisture) yearly. Precipitation averages from 76 to 150 centimetres a year in most of North Korea. Heavy rainfall from June to August accounts for about half of Korea's yearly precipitation. In most years, one or two typhoons hit the peninsula during July and August.

### Economy

Since the Korean War ended in 1953, the economies of South and North Korea have grown rapidly. Before the war, the economies of both parts of Korea depended chiefly on agriculture, though North Korea had some heavy industry and South Korea had some light industry. Since the war, industrial production, especially manufacturing, has gained much importance in both economies. South Korea's industrial expansion has made it one of the world's fastest-growing economies. In addition, such service activities as communication, government, trade, and transportation have grown in importance, particularly in South Korea. North Korea's economy remains dependent on heavy industry, and its technology lags behind that of South Korea.

**South Korea.** The value of goods and services produced each year in South Korea totals about 210 billion U.S. dollars. This value is the country's *gross national product* (GNP). Industrial production accounts for about 32 per cent of South Korea's GNP, and agriculture for about 10 per cent. The remaining 58 per cent comes from service activities. Agriculture employs about 20 per cent of all South Korean workers, industry about 30 per cent, and service activities about 50 per cent.

**Service industries** are economic activities that produce services, not goods. Such industries are especially important to the Seoul area.

Wholesale and retail trade, hotels, and restaurants make up South Korea's main service industry. This industry benefits heavily from tourist activities. It employs more than 20 per cent of all workers. Government services and such community, social, and personal services as education and health care also employ many people.

Other service industries are becoming increasingly important in South Korea. They include finance, insurance, and property; transportation and communication; and utilities. Transportation and communication are discussed later in this section.

**Manufacturing and mining.** South Korea has one of the world's fastest-growing industrial economies. Almost all of the country's industry is privately owned. Manufacturing accounts for about 75 per cent of the South's industrial production. The manufacture of clothing, shoes, and textiles employs more South Koreans than does any other industry. Food processing is also a major industry. Since the Korean War, South Korea has developed heavy industry and is a major producer of chemicals, fertilizers, iron and steel, machinery, and ships. In the 1970's and 1980's, South Korea expanded its production of cars, computer equipment and parts, electric appliances, optical goods, and television sets. Other manufactured products include paper, plywood, porcelain, and rubber tyres.



**Manufacturing** has helped make South Korea one of the world's fastest-growing economies. The production of clothing, shoes, and textiles provides jobs for many people, such as these workers in a Seoul garment factory.

South Korea's change from an agricultural economy to a modern industrial economy has spurred a boom in construction. Factories, office and apartment buildings, highways, and water and sewerage systems are being built throughout the nation. Construction accounts for about 23 per cent of industrial production, and mining accounts for about 2 per cent. *Anthracite* (hard coal) and tungsten are the chief mining products. South Korea also mines graphite, iron ore, lead, and zinc.

**Agriculture and fishing.** South Korea's 2 million farms average about 1 hectare in size. Almost all the farmland is privately owned. Rice is by far the country's chief crop. South Korean farms also produce apples, barley, Chinese cabbage, melons, onions, potatoes, soybeans, sweet potatoes, pigs, and chickens. The South's major agricultural areas lie along the western and southern coasts. A large orange crop is harvested on Cheju Island, off the southern coast.

South Korea is one of the world's leading fishing countries. The catch includes filefish, oysters, and pollock. Many farmers add to their income by fishing.

**Foreign trade.** South Korea's chief trading partners are Germany, Japan, and the United States. The South's main exports include cars, clothing, electrical equipment, electronics, fish, ships, shoes, steel, and textiles. Its main imports include chemicals, crude oil and other industrial raw materials, and machinery.

**Energy sources.** Coal-, gas-, and petroleum-burning plants together provide about 60 per cent of South Korea's electricity. Most of these plants use petroleum. South Korea imports all its petroleum from abroad. About 30 per cent of the country's energy is generated by nuclear plants, and about 10 per cent by water power.

**Transportation.** South Korea has an excellent government-owned railway system and a road network that includes motorways between the principal cities. However, traffic jams on the motorways occur frequently. South Korea has an average of about one car for every 30 people, but most city dwellers own a car. Buses and trains provide fast and frequent service. Seoul has an extensive underground rail system. Many people in rural areas use bicycles for short trips. Korean Air, a privately owned airline, provides international flights and service between major South Korean cities. Seoul and Pusan have important international airports.

**Communication.** Private and government-owned radio and television networks broadcast throughout South Korea. South Korea has about one TV set for every five people and about one radio per person.

About 40 daily newspapers are published in South Korea. The largest ones—*Choson Ilbo*, *Dong-A Ilbo*, *Hankook Ilbo*, and *Joong-ang Ilbo*—are all privately owned, published in Seoul, and sold throughout the country. There are also two English-language daily newspapers.

**North Korea** releases little information about its economy, and so the statistics in this section are estimates. North Korea's GNP totals an estimated 23 billion U.S. dollars yearly. Industrial production probably accounts for the largest part of the GNP. Agriculture employs about 25 per cent of North Korea's workers, industry about 50 per cent, and service activities about 25 per cent.

Until 1950, North Korea was the chief industrial region of the peninsula. But South Korea has surpassed it. North Korea has rivers suitable for producing electric power, as well as some of the richest mineral deposits in eastern Asia.

**Service industries.** Community, government, and personal services form North Korea's main type of service industry. This field includes such activities as education, health care, government, and the military. Trade, transportation, and communication have some importance. The government owns nearly all service industries in North Korea.

**Manufacturing and mining.** The North's chief manufactured products are cement, chemicals, iron and steel, machinery, metals, processed foods, and textiles. The government owns nearly all North Korean factories, and it tightly controls all industry. North Korean mines yield coal, graphite, iron ore, lead, magnesium, phosphates, salt, silver, tungsten, and zinc.

**Agriculture and fishing.** The government controls all of North Korea's farms. Most farms are collective farms, known in North Korea as *cooperatives*. Workers on these farms receive a share of the products and some cash payment. They may also help manage the farms. A few farms, called *state farms*, are owned and managed completely by the government. The workers on state farms receive wages.

The North's main agricultural region is the Northwestern Plain. Rice is by far the chief crop. Other major farm products include barley, maize, potatoes, and wheat.

North Korea's fishing industry is concentrated on its eastern coast. The catch includes pollock, sardines, shellfish, and squid. Fishing cooperatives are located on both coasts.

**Foreign trade.** North Korea's chief trading partners are China, Japan, and Russia and the other former republics of the Soviet Union. North Korea's leading exports are minerals, chiefly iron ore, lead, tungsten, and zinc. The North also exports cement, coal, machinery, rice, and textiles. Its major imports are grain, machinery, petroleum, and transportation equipment.

**Energy sources.** About three-quarters of North Korea's energy is produced by coal-burning plants. North Korea mines all the coal it needs. The rest of the country's energy comes from water power.

**Transportation.** Railways carry most of North Korea's long-distance freight and passenger traffic. North Korea has greatly expanded its road network since the mid-1960's. Buses operate in the cities and for short distances in rural areas. Almost all cars are government-owned and are intended for official business use. Many city people ride bicycles. North Korea operates an airline. The state runs the entire transportation system.

**Communication.** The government controls all broadcasting, publishing, and other means of communication in North Korea. It runs North Korea's radio and TV network and its broadcasting stations in the provinces. North Korea has about one radio for every 6 people and about one TV set for every 80 people. About 10 daily newspapers are published in North Korea.

## History

**Early years.** Scientists have found evidence that people lived in the southwestern part of the Korean Penin-



sula about 30 000 years ago. But little is known about prehistoric times in what is now Korea. In about the 2300's B.C., the first Korean state developed along the Taedong River, near present-day Pyongyang. It was called Choson. In 108 B.C., China conquered the northern half of the peninsula and established four territories there. Korean tribes won back three of the territories by 75 B.C. The other territory, called Lelang, remained under Chinese control.

During the A.D. 100's, several Korean tribes united and formed the state of Koguryo in the northeastern part of the peninsula. Two other Korean states—Paekche in the southwest and Silla in the southeast—were formed during the late 200's. Historians call Koguryo, Paekche, and Silla the *Three Kingdoms*.

Silla conquered Paekche and Koguryo in the 660's and thus took control of the entire peninsula. Korean art and learning flourished in the next 200 years. Confucianism, introduced into the peninsula from China, became a strong influence on Korean thought and behaviour.

In the 800's, Silla broke apart as the kingdom lost control over former Koguryo and Paekche territories to rebel leaders. But by 932, a general named Wang Kon had reunited Silla. He renamed the country *Koryo*. The word Korea comes from the word *Koryo*. The Koreans invented the first movable metal printing type in 1342.

Mongol tribes from the north repeatedly attacked Koryo from the early 1230's until they conquered it in 1259. Koryo regained its freedom in 1368. Two groups in the country then fought for control until 1388, when a general named Yi Songgye led one group to victory.

**The Yi dynasty.** General Yi became king of Koryo in 1392 and renamed the country *Choson*. Today, North Koreans use the name Choson for their country. South Korea is known as *Taehan*.

Yi founded a *dynasty* (line of rulers of the same family) that lasted until 1910. Yi ended the government's official support of Buddhism, which had existed since the 700's. Buddhism declined in importance and did not become popular in Korea again until the 1900's.

Yi and the rulers who followed him reunited Korea. But during the 1500's, government officials and wealthy landowners began to struggle for political power. This struggle weakened Korea's government.

### Important dates in Korea

**108 B.C.** China conquered the northern half of Korea.

**A.D. 313** Korean forces drove the Chinese from Korea.

**1259** Mongol armies conquered the Koreans.

**1368** The Koreans freed themselves of Mongol rule.

**1392** General Yi Songgye founded the Yi dynasty. It lasted until 1910.

**1590's** Japanese forces invaded Korea but were driven out.

**1630's** Manchu armies invaded Korea and forced it to acknowledge the Manchu as feudal lords. But members of the Yi family continued as kings.

**1910** Japan took control of Korea.

**1945** Soviet forces occupied northern Korea, and U.S. forces occupied southern Korea, after World War II.

**1948** The Republic of Korea (South Korea) and the Democratic People's Republic of Korea (North Korea) were created.

**1950-1953** South Korea fought North Korea in the Korean War. Tension between the two Koreas continued after the war.

**1991** Talks between representatives of South Korea and North Korea resulted in several agreements, including an agreement not to use force against each other.

Japanese forces invaded Korea in the 1590's but were driven out. Manchu armies from the north invaded in the 1630's. The Manchus forced Koreans to submit *tributes* (payments), but members of the Yi family continued as kings.

Beginning in the 1600's, Korea's rulers closed the country to all foreigners for almost 200 years. Roman Catholic missionaries from Europe first entered Korea during the 1830's. But the Korean authorities persecuted the missionaries and killed thousands of Koreans who had become Catholics. Korea was called the *Hermit Kingdom* during this period because it had little contact with any countries except China and Japan.

**Korea under Japan.** In 1876, Japan forced Korea to open some ports to trade. Japan took complete control of Korea in 1910. The Japanese governed Korea as a colony to benefit their own interests. A great number of Koreans were forced to aid the Japanese war effort during World War II (1939-1945).

**A divided nation.** Korea remained under Japanese control until 1945, when Japan was defeated in World War II. After Japan's defeat, United States troops occupied the southern half of Korea, and Soviet forces occupied the northern half. The United States and the Soviet Union tried to develop a plan for reuniting Korea. They failed, and the United States submitted the problem to the United Nations (UN) in 1947.

The UN wanted to supervise elections to choose one government for Korea. But the Soviet Union refused to allow UN representatives into the North. In the South, in 1948, UN representatives supervised an election of representatives to a National Assembly. The Assembly drew up a constitution. In July 1948, the Assembly elected Syngman Rhee president of the Republic of Korea, which was formed on August 15. In northern Korea, the Communists announced formation of the Democratic People's Republic of Korea on September 9. Both governments claimed to represent all of Korea.

North Korean troops invaded the South in June 1950, and the Korean War began. The fighting continued until an armistice was signed in July 1953. Neither side won complete victory. See **Korean War**.

**South Korea.** The division of Korea left the South with a weak economy. Rhee's term was due to end in 1952. But he pushed through the Assembly a constitutional amendment that turned over election of the president to the people. The voters reelected Rhee by a wide margin. In 1955, Rhee had the Constitution amended again to permit him to serve more than two terms. He was reelected to a third term in 1956.

In March 1960, Rhee ran for a fourth term. He was unopposed because his opponent died before the election. Rhee and his party won. But during March and April, students led widespread demonstrations against the government. Rhee resigned in April.

Elections were held in July 1960, and a new government took office. But South Korea's economic difficulties continued. In May 1961, a group of military officers led by General Park Chung Hee overthrew the government. Park then became head of the new government. In 1963, Park called for elections to restore democratic government in South Korea. Park won the election for president, and his Democratic Republican Party gained a majority of the seats in the National Assembly.

**South Korea under Park.** South Korea's economy developed rapidly under Park. In 1967 and 1971, Park and his party won reelection by a large margin. In 1972, Park forced through a new constitution that gave him almost unlimited powers. It also provided that the president might serve an unlimited number of terms. Park was re-elected by the country's electoral college—whose members had been chosen by his supporters—in a special election held that year. Park was reelected again in 1978. His party won the National Assembly elections in 1973 and 1978.

Park frequently used his power to hold down opposition to his government. Freedom of speech and of the press were limited, and many South Koreans who opposed Park were jailed. Park claimed that too much criticism might weaken his government and thus reduce its ability to guard against attack by North Korea. But many of Park's opponents denounced him as a dictator.

President Park was assassinated by Kim Jae Kyu, head of South Korea's Central Intelligence Agency (now called the Agency for National Security Planning), in October 1979. In December, Prime Minister Choi Kyu Hah was elected president by the electoral college.

**The rise of Chun.** President Choi's government ended some of the restrictions on freedom of expression that had existed under Park. But the government delayed a promised constitutional revision that would allow the direct election of the president by the people. Many South Koreans then staged demonstrations. In May 1980, South Korea's military leaders declared martial law and reestablished the restrictions on freedom of expression. Choi remained president, but the military, led by Lieutenant General Chun Doo Hwan, dominated the government. Violent clashes took place between demonstrators and the military in the city of Kwangju. Hundreds of demonstrators were killed.

In August 1980, Choi resigned and the electoral college elected Chun president. In October, a new constitution was adopted. Martial law was repealed in January 1981. In February, Chun was again elected. The next month, Chun's Democratic Justice Party won a majority of seats in the National Assembly. Chun's government stabilized prices and increased exports, but scandals involving Chun's relatives weakened its popular support. Many students demonstrated against Chun and demanded a new, more democratic constitution.

**Recent developments.** In June 1987, Chun pledged to allow direct election of the president by the people rather than by the electoral college. The direct election was held in December, and Roh Tae Woo of the Democratic Justice Party, a former general and close associate of Chun, was elected president. In 1990, the Democratic Justice Party merged with two smaller parties to form the Democratic Liberal Party (DLP).

In October 1987, a new democratic constitution was adopted by a referendum of all the voters. The new constitution allows almost complete political freedom. Since its adoption, college students have demonstrated in large numbers demanding correction of many social problems. Labourers have staged frequent strikes for higher wages and better working conditions. The higher wages and increased political instability have caused inflation and slowed South Korea's economic growth rate, still one of the highest in the world.

In elections held in 1992, the DLP lost its majority in the National Assembly. Kim Young Sam of the United People's Party took office as the new president in 1993.

**North Korea.** Kim Il Sung became the leader of North Korea when the government was established in 1948. In 1946, when North Korea was still under Soviet occupation, the Communist government took over farmland from wealthy landowners and gave it to the poor farmers. It also took control of most industries. Between 1953 and 1956, Kim's government organized all of the country's farmland into collective farms. In 1954, it announced the first of a series of plans for economic development. North Korea emphasized the development of heavy industry and built up its military power.

Kim's government operated as a strict dictatorship. It trained people to believe Kim was the "sun" of all the people and could do no wrong. Kim died in 1994. He was succeeded by his eldest son, Kim Chong Il.

**North-South relations.** In 1967, North Korean forces began to make frequent attacks into the *demilitarized* (neutral) zone between the North and the South and into South Korea itself. In 1968, about 30 North Korean commando troops raided Seoul. They tried to assassinate President Park but failed. The amount of small-scale fighting between the North and South increased at about the same time.

North Korea's aggression involved the United States as well as South Korea. In January 1968, North Korea seized the U.S. intelligence ship *Pueblo* in the Sea of Japan. The North claimed the ship had been operating in North Korean waters and accused the crew of spying. The United States denied the charges. North Korea released the 82 survivors of the 83-man crew in December 1968 but refused to return the *Pueblo*. In 1969, the North shot down a U.S. Navy plane almost 160 kilometres off the North Korean coast.



Talks between North and South Korea in 1991 resulted in a pact designed to reduce the threat of violence and increase communication between the two countries. Representatives of the two Koreas shake hands after signing the accord, above.



In 1983, a bomb blast killed 17 South Koreans, including four cabinet ministers, during an official visit to Rangoon, Burma. A court in Burma found North Korean agents guilty of the bombing. In 1987, a Korean Air Lines (now Korean Air) plane from South Korea exploded in midair near Burma, killing 115 people. The South Korean government accused North Korea of planting a time bomb on the plane. North Korea denied the charge.

In September and October 1988, South Korea hosted the Summer Olympics. North Korea refused to participate in the games after its request to be named co-host was denied.

In 1991, the two governments agreed to accept each other's existence, and North and South Korea joined the UN as separate states. Also in 1991, talks resulted in several agreements, including a pact in which the two Koreas agreed not to use force against each other. As part of the pact, the governments of the two countries also agreed to increase trade and communication—which had been restricted—between them. Another accord prohibited North and South Korea from using or possessing nuclear weapons. After this accord was signed, some tension arose over concerns that North Korea intended to withhold information about its nuclear capability. Nevertheless, the two agreements represented the most significant development in North-South relations since the end of the Korean War.

#### Related articles in *World Book* include:

Asia (picture: A fish market)	Kaesong	Pyongyang
Chinese-Japanese wars	Kim Il Sung	Russo-Japanese War
Clothing (picture: Traditional costumes)	Martial arts (Korean martial arts)	Sculpture (Korea)
Inchon	Panmunjom	Seoul
	Park Chung Hee	Taegu
	Pusan	Yalu River

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#### Questions

- When were North Korea and South Korea established?  
 What is the chief crop grown in Korea?  
 What percentage of the workers in Korea are farmers?  
 What percentage of Koreans can read and write?  
 Why was Korea once called the *Hermit Kingdom*?  
 What are Korea's main land regions?  
 How do monsoons affect the weather in Korea?  
 How does city life in North Korea differ from that in South Korea?  
 What economic disadvantages did the South have after Korea was divided?  
 How has the Korean way of life changed since 1900?

**Korean War (1950-1953)** was the first war in which the United Nations (UN) played a military role.

The Korean War began on June 25, 1950, when troops from Communist-ruled North Korea invaded South Korea. The UN called the invasion a violation of international peace and demanded that the Communists withdraw from South Korea. After the Communists kept fighting, the UN asked its member nations to give military aid to South Korea. Sixteen UN countries sent troops to help the South Koreans, and 41 countries sent military equipment or food and other supplies. The United States sent more than 90 per cent of the troops, military equipment, and supplies. China fought on the side of North Korea, and the Soviet Union gave military equipment to the North Koreans.

The Korean War ended on July 27, 1953, when the UN and North Korea signed an armistice agreement. A permanent peace treaty between South Korea and North Korea has never been signed.

The Korean War was one of the bloodiest wars in history. About a million South Korean civilians were killed and several million were made homeless. About 580,000 UN and South Korean troops and 1,600,000 Communist troops were killed, wounded, or reported missing.

**Causes of the war.** The Japanese gained control of Korea in 1895 and made it part of Japan in 1910. The Allies defeated Japan in World War II (1939-1945), and U.S. and Soviet forces moved into Korea. After the war, Soviet troops occupied Korea north of the 38th parallel of north latitude. American troops occupied Korea south of this line.

In 1947, the UN General Assembly declared that elections should be held throughout Korea to choose one government for the entire country. But the Soviet Union would not permit elections in North Korea. On May 10, 1948, the people of South Korea elected a national assembly. The assembly set up the government of the Republic of Korea. On September 9, North Korean Communists established the Democratic People's Republic of Korea. Both North and South Korea claimed the entire country, and their troops clashed near the border several times from 1948 to 1950. After the United States removed its last troops from Korea in 1949, the Communists believed the time was right for military action.

**The land war.** U.S. ground forces were ordered into action against the invading North Koreans at the end of June 1950. Troops from other UN countries began arriving in South Korea soon afterward. The North Koreans captured Seoul, the capital of South Korea. UN forces were pushed back to the Pusan Perimeter, a battle line in the southeast corner of Korea, but prevented a North Korean breakthrough.

In September, the UN landed troops from the sea at Inchon, on the northwest coast of South Korea. The Allied troops succeeded in cutting off the North Koreans in the southeast from those north of Inchon. The Allies recaptured Seoul. In the autumn of 1950, the UN forces moved into North Korea, and captured Pyongyang, the North Korean capital, in October. As UN forces advanced toward the Chinese border, U.S. and Chinese troops clashed. The UN commander, General Douglas MacArthur, underestimated the size of the Chinese armies and believed that UN superiority in naval and air forces would end the war quickly.

However, in November, China sent huge forces against the UN and forced the Allies to retreat into South Korea. In January 1951, the Communists captured Seoul. The Allies fought back, and by the spring of 1951 the war had changed as both sides dug in and began fighting along a battle line north of the 38th parallel.

In April 1951, U.S. President Harry Truman removed General MacArthur from command and replaced him with General Matthew Ridgway. General MacArthur had called for "all-out measures," including the bombing of China.

**The air war.** The Korean War marked the first battles between jet aircraft. The Soviet Union supplied North Korea with MiG-15 jet fighters to combat the U.S. F-86 Sabre jets. All the dogfights between these jets took place over North Korea. Helicopters also played an important part in the war.

**The truce talks.** A cease-fire was proposed by the Soviet Union in June 1951. The two sides agreed that the existing battle line would be the dividing line between North and South Korea. An armistice was signed in July 1953 and fighting ended. Prisoner exchanges were completed in September 1953. But in 1954, talks held in Geneva, Switzerland, failed to draw up a long-term peace plan. No permanent peace treaty was signed.

**Related articles in *World Book* include:**

Korea (History)	Truman, Harry S.
MacArthur, Douglas	United Nations
Panmunjom	

**Korin.** See *Painting* (Japanese painting; picture).

**Kornberg, Arthur.** See *Cell* (Cell research: The 1900's); *Nobel Prizes* (table: Nobel Prizes for physiology or medicine—1959).

**Korsakoff's syndrome.** See *Alcoholism*.

**Korzeniowski, Józef.** See *Conrad, Joseph*.

**Kosciusko, Mount.** See *Mount Kosciusko*.

**Kosciusko, Thaddeus** (1746-1817), was a Polish patriot who fought for the independence of the United States and Poland. Kosciusko is often called the "Hero of Two Worlds." His name is also spelled Tadeusz Kościuszko.

Kosciusko was born in what is now western Belarus. He went to America in the summer of 1776, during the American Revolution. He offered his services to the Continental Congress and was appointed engineer with the rank of colonel. He built fortifications near Saratoga and strengthened American defences along the Hudson River, including those at West Point. After the war ended in 1783, Congress made him a brigadier general.

Kosciusko returned to Poland in 1784. In 1794, he commanded a Polish *insurrection* (uprising) against Russian control. In this struggle, he combined Poland's fight for independence with the people's struggle for social justice. The defeat of the insurrection led to the third *partition* (division) of Poland by Russia, Prussia, and Austria. See *Poland* (The partitions).



Thaddeus Kosciuszko

**Kosher**, also spelled *kasher*, is a Hebrew word that means *fit* or *proper*. The word usually refers to food, but it may apply to anything considered ritually correct or acceptable according to Jewish law.

Kosher food is food prepared according to a set of Jewish dietary laws. These laws are based on passages from the Biblical books of Leviticus and Deuteronomy. For example, the laws specify that bread is kosher if it contains no forbidden fat and was not baked on the Sabbath. The laws also forbid foods from animals considered unclean. These foods include pork and shellfish. In addition, only certain parts of such acceptable animals as cattle and sheep may be eaten.

The preparation of food according to Jewish dietary laws is called *koshering*. Animals must be killed by ritual slaughter, called *shehitah*. This method is designed to kill animals as quickly and painlessly as possible. Before the meat is cooked, it must be drained of blood by being soaked in cold water and then salted.

It is not kosher to eat certain foods together. For example, milk and other dairy products may not be eaten with meat. Jews who keep a kosher home must have one set of dishes and cooking utensils for meat meals and another set for meals that include dairy products.

See also *Judaism* (Dietary laws).

**Košice** (pop. 218,238) is the chief industrial centre of Slovakia. It lies on the Hornád River at the foot of the Carpathian Mountains, see *Slovakia* (map).

The centre of Košice dates from medieval times. It includes the Gothic cathedral of St. Elizabeth, begun in the 1300's. Since World War II (1939-1945), industrial areas have sprung up around the old part of Košice. Construction of a huge steel-manufacturing plant attracted many workers from rural areas. Apartment blocks were constructed to house the workforce. Košice also has food-processing and textile industries and fertilizer plants.

In 1241, King Béla IV of Hungary chartered a settlement that then existed at Košice. The city was chiefly controlled by Hungary until the end of World War I in 1918. Then, it became part of Czechoslovakia. Hungary regained control during World War II. After the war, Košice was returned to Czechoslovakia.

In 1993, Czechoslovakia was divided into the Czech Republic and Slovakia.

**Kossuth, Lajos** (1802-1894), a Hungarian national hero, led the unsuccessful Hungarian rebellion of 1848-1849. He entered parliament in 1825, and soon became a leader of the movement for liberal government reform. When uprisings broke out in the Austrian Empire in 1848, the Hungarians, led by Kossuth, also revolted. They claimed the right to complete independence. But Kossuth refused to grant independence to the minority groups living in the Hungarian part of the empire. The minorities revolted against Hungarian rule. Russia helped the Austrians defeat Kossuth's army.

Kossuth fled to Turkey in 1849. There, he was held prisoner for a time. Afterwards, he toured the United States, and was hailed by Americans as the *Hungarian George Washington*. He died in exile. Kossuth was born at Monok in northeastern Hungary.

**Kosygin, Aleksel Nikolaevich** (1904-1980), served as premier of the Soviet Union from 1964 to 1980. He rose to power along with Leonid Brezhnev, who took over as head of the Communist Party. The two men re-



placed Nikita Khrushchev, who had been the party chief since 1953 and Soviet premier since 1958.

For several years, Brezhnev and Kosygin shared power almost equally. Kosygin, as premier, was the chief administrator in the Soviet government. By the early 1970's, however, Brezhnev had become the most powerful leader. By 1977, he controlled the government as well as the party. The two men continued to work together despite Kosygin's loss of power.

Kosygin was born in St. Petersburg. He fought on the Communist side in the civil war that broke out in Russia in 1918. Kosygin joined the Communist Party in 1927. He supervised the evacuation of Leningrad (the name of St. Petersburg from 1924 to 1991) after German troops began a siege of the city in 1941, during World War II. After the war ended in 1945, he held a variety of government posts and gained a reputation as an excellent administrator. In 1960, he was named first deputy premier. He served directly under Khrushchev.

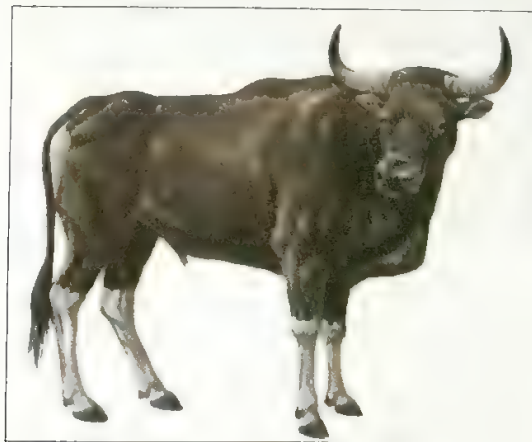
As premier, Kosygin worked to develop light industry in the Soviet Union. In 1965, he began a programme designed to give financial rewards to factory managers and farmworkers who excelled at their jobs. He also worked for better trade links with the Western nations. These policies became important Soviet long-term goals. Kosygin resigned as premier in October 1980 because of poor health. He died in December.

See also Brezhnev, Leonid Ilyich; Cold War.

**Kota Kinabalu** (pop. 56,000) is a town on the island of Borneo. It is the capital and largest town of Sabah, one of the states of Malaysia. The municipal area, which includes the towns of Inanam, Menggatal, and Telipak, has a combined population of more than 100,000. Kota Kinabalu is situated on Gaya Bay, at about the middle of the western coast of Sabah. For location, see Malaysia (political map). About 60,000 people are Pribumi, the local people of Sabah. About 40,000 people are of Chinese ancestry.

Kota Kinabalu is Sabah's second largest port. It is the state's main centre of administration and commerce. Kota Kinabalu is a modern town with well laid out streets. Prominent buildings include the 30-storey Sabah Foundation Building and the State Mosque.

The British founded a settlement on the site of Kota



The kouprey is a rare animal found in southeastern Asia.

Kinabalu in 1899. It was originally called *Jesselton*.

See also Sabah.

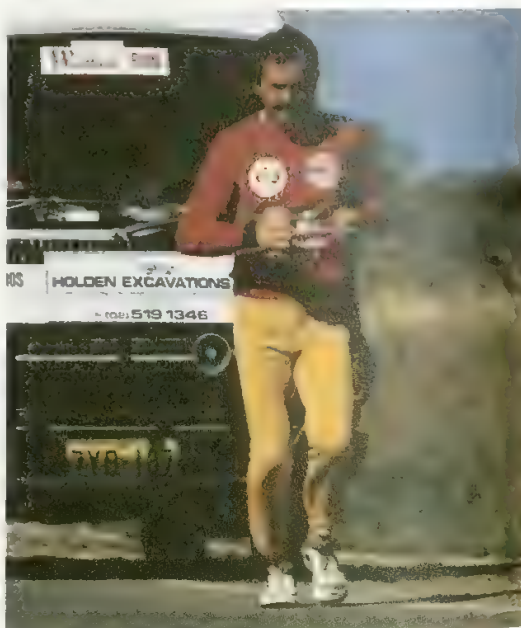
**Koumiss.** See Kumiss.

**Kouprey** is a type of wild cattle that lives in Cambodia. It is also called the *Indochinese forest ox*. The kouprey was first named and described by scientists in 1937. In 1987, only about 200 remained in the wild.

The kouprey has small narrow ears, a large dewlap (loose fold of skin below the throat), long slender legs and hoofs, and a long tail. The kouprey is about 1.8 metres tall at the shoulder. *Bulls* (males) have large, curved horns. The horn-tips of older bulls are worn into hairlike shreds. Bulls have blackish-brown hides and short, glossy hair. *Cows* (females) and *calves* (young kouprey) are grey. Little is known of the kouprey's habits.

**Scientific classification.** The kouprey is a member of the bovid family, Bovidae. It is *Bos sauveli*.

**Kouros, Yiannis** (1956- ), a Greek athlete, won fame as a runner in the *ultramarathon*, a race longer than the marathon distance of 26 miles 385 yards (42.2 kilometres). Kouris won the Westfield Run from Sydney



Yiannis Kouros won many ultramarathon races. He won the Westfield Run from Sydney to Melbourne in 1985 and 1987.

to Melbourne in 1985 and 1987. Kouros was born at Tripolis in Greece. He became a marathon runner with a personal best time of 2 hours 24 minutes.

Kouros first began entering ultramarathons in 1983 when he won the 255-kilometre Spartathlon in Greece. In 1984, he won the New York Six-Day Race covering more than 1,016 kilometres. In Australia in 1985, he won the Westfield Run over 960 kilometres in 5 days 5 hours and 7 minutes. In 1987, he won the Westfield Run over 1,060 kilometres in 5 days 14 hours and 47 minutes.

**Kowhai** is the name of two types of flowering shrubs that are native to New Zealand. Red kowhai is rare. It is a fairly small shrub with dark green, glossy, divided

leaves and large, brilliant red pea flowers in pendulous heads. Yellow kowhai is a tree with divided leaves, large golden pea flowers in heads, and long pods.

**Scientific classification.** Kowhais belong to the pea family, Leguminosae (Fabaceae). Red kowhai is *Cianthus puniceus*. Yellow kowhai is *Sophora tetraptera*.

See also Tree (Familiar broadleaf and needleleaf trees: picture).

**Kowloon** (pop. 799,123), also called Jiu-long or Chiu-lung, and New Kowloon (pop. 1,651,064) make up part of a large urban area of Hong Kong, a crown dependency of the United Kingdom. New Kowloon lies north of Kowloon. Kowloon covers about 10 square kilometres on the Kowloon Peninsula of China, across Kowloon Bay from Hong Kong Island. Most of its people are Chinese. China ceded Kowloon to the United Kingdom in 1860.

See also Hong Kong.

**Krakatau** is a volcano that lies in the Sunda Strait of Indonesia, between the islands of Sumatra and Java. It is also called Krakatoa. Much of the volcano is under water. But some of it projects above the water in the form of the islands Krakatau, Anak Krakatau, Lang, and Verlaten. For location, see Indonesia (map). The volcano rises 813 metres above sea level.

Krakatau is known for an eruption in August 1883, which killed about 36,000 people on nearby islands. It generated huge waves, called *tsunamis*, of up to 40 metres high. The eruption, heard over 4,000 kilometres away, had global effects. Volcanic dust in the atmosphere caused spectacular sunsets over the next three years in the Northern Hemisphere. The eruption destroyed much of Krakatau Island. Eruptions from 1927 to 1930 created Anak Krakatau from the submerged crater.

**Kraków** (pop. 751,300) is a city that lies on the Vistula River in south-central Poland. For the location of Kraków, see Poland (political map).

Kraków has long served as a centre of Polish cultural life. The city is the home of Jagiellonian University, which was founded in 1364. Kraków also has many historic buildings and museums, including the Royal Castle, which was once the home of Poland's kings.

Poland's largest steel mill, the Nowa Huta plant, is in Kraków. The city also manufactures chemicals, drugs, leather, textiles, and processed foods.

Kraków had become an important crossroads of trade between Asia and Europe by the 700's. The city was the capital of Poland from 1038 to 1596. Austria took control of Kraków in 1795. The city became self-governing in 1815, but Austria seized it again in 1848. Kraków was re-joined with Poland in 1920.

See also Galicia.

**Kramer, Jack.** See Tennis (tables).

**Kravchuk, Leonid Makarovich** (1934- ), served as president of Ukraine from 1991 to 1994. Formerly a republic of the Soviet Union, Ukraine had declared its independence shortly before the Soviet Union collapsed in December 1991. As president, Kravchuk worked to keep Ukraine free from control of Russia, Ukraine's large neighbour. He limited Ukraine's role in the Commonwealth of Independent States, fearing Russian domination of that association of former Soviet republics. Kravchuk also opposed efforts by Russia to regain the Crimea, a region that had been transferred from Russia to Ukraine in 1954.

Under Kravchuk, Ukraine sent the short-range Soviet nuclear weapons that had been stationed on its territory to Russia for destruction. In 1993, Ukraine claimed all nuclear weapons on its territory but said it would become a non-nuclear state. Kravchuk was defeated in an election in 1994.

Kravchuk was born in Velyky Zhityn, in western Ukraine. Kravchuk joined the Communist Party of Ukraine in 1960 and became a leading party official. He quit the party in 1991 as the Soviet Communist system was falling apart.

**Krebs, Sir Hans Adolf** (1900-1981), a German biochemist working in England, shared the 1953 Nobel Prize for physiology or medicine. He received the award for his discovery in 1937 of the citric acid cycle in metabolism (see Metabolism). In this cycle, called the *Krebs cycle*, tissues use carbohydrates, fat, and protein to produce energy. In 1932, Krebs announced the discovery of how another cyclic process forms the compound urea in the liver. Krebs was born in Hildesheim, Germany. In 1958, Queen Elizabeth II knighted him.

**Krebs cycle** is a series of chemical reactions that take place in all cells that require oxygen to live. It is also called the *citric acid cycle* or *tricarboxylic acid cycle*. Hans Krebs, a German-born biochemist, shared the 1953 Nobel Prize for physiology or medicine for discovering the process. The cycle is an important part of *metabolism*, in which cells change food into energy.

The chemical reactions in the cycle change acetyl-coenzyme A, a form of acetic acid, to carbon dioxide and water. It forms in the body from the partial breakdown of fats, proteins, and carbohydrates.

The Krebs cycle begins when acetyl-coenzyme A combines with oxaloacetic acid, which is an end product of the cycle itself. This combination of acids forms citric acid. Rearrangement of the citric acid molecules produces isocitric acid. The isocitric acid then passes through a series of stages during which six intermediate acids are formed— $\alpha$ -ketoglutaric, succinic, succinyl-coenzyme A, fumaric, malic, and then, finally, oxaloacetic. The oxaloacetic acid is then ready to combine with acetyl-coenzyme A to begin another cycle. Each step of the cycle provides energy.

**Kreisler, Fritz** (1875-1962), one of the best-loved violinists of all time, was also a composer. His recordings are studied for the way they demonstrate natural and effective shaping of musical phrases and the use of *rubato* (shortening and lengthening notes).

Kreisler's many compositions include *Caprice Viennois*, *Tambourin Chinois*, *Liebesfreud*, *Liebesleid*, and *Schön Rosmarin*. Many other pieces were first published as the work of earlier composers. Later, Kreisler admitted that he had written the music in their style.

Kreisler was born in Vienna, Austria. He became a pupil at the Vienna Conservatory when he was 7 years old. Three years later he entered the Paris Conservatory. He made his New York City debut when he was 13 and his Berlin debut at the age of 24, after briefly studying medicine and art. In 1939, after Germany annexed Austria, Kreisler became a French citizen. Later, he settled in the United States and became a U.S. citizen.

**Kremlin** is a fortified enclosure within a Russian city. The name comes from the Russian word *kremľ*, which means *fortress*. Many Russian cities have kremlins, but





**The Kremlin** in Moscow includes a variety of architectural styles. The Vodovzvodnaya Tower, one of the Kremlin's 20 towers, stands in the foreground. The Armory Palace is to the left of the tower. To the right of the tower are the Grand Kremlin Palace and the many-domed Cathedral of the Archangel.

the most famous one—known simply as the Kremlin—is the vast Kremlin of Moscow.

The Kremlin has a long history as a seat of government in Russia. Beginning in the 1100's, when Moscow was the centre of one of many Russian states, its princes ruled from the Kremlin. The Kremlin was the centre of czarist rule from the mid-1500's until 1712, when Peter the Great moved the Russian capital to St. Petersburg. Moscow and the Kremlin again became the centre of government in 1918, shortly after the Communists took control of Russia. The Kremlin remained the seat of government after the Communists formed the Soviet Union in 1922. With the breakup of the Soviet Union in 1991, the Kremlin again became the centre of government of an independent Russia.

Today, many Kremlin buildings serve as museums. The Kremlin's historical treasures include paintings, jewels, and crowns worn by the czars.

The first Kremlin on the site was built in 1156. The present Kremlin walls have stood since the late 1400's, when Moscow became the most powerful Russian city. At that time, architects from northern Italy and from throughout Russia were called to work on the Kremlin. Italian architects built the Cathedral of the Assumption (1475-1479), the Granovitaya Palace (1487-1491), the Bell Tower of Ivan the Great (1505-1508), and the Cathedral of the Archangel Michael (1505-1509). The Italian architects blended the Italian Renaissance classical style with more traditional Russian forms, like those used in the Kremlin's Cathedral of the Annunciation (1484-1489).

During the 1600's, the Kremlin's towers and buildings were enlarged and redecorated. The major Kremlin buildings of this period are the Terem Palace (1635-1636) and the Palace of the Patriarchs (1645-1655). In the 1700's and 1800's, construction continued but in the baroque and later neoclassical styles. Notable buildings from this period include the Arsenal (1702-1736), the Menshikov Tower (1705-1707), the Senate (1776-1787), and the Grand Kremlin Palace (1838-1849). Buildings added to the Kremlin during the 1900's include the Presidium (1932-1934) and the Palace of Congresses (1960-1961).

See also *Moscow*.

**Krill** are small, shrimplike animals that live in oceans across the world. There are over 90 species of krill. They range in length from about 10 to 150 millimetres.

Krill have organs that give off light. Scientists think these create light when the animals search for food or try to attract a mate, or under other conditions. Krill apparently respond to different amounts of sunlight. Many

species stay in dark depths of the sea during the day and swim to the surface to feed at night.

Krill are eaten by many kinds of animals, including various fish, seals, squids, water birds, and baleen whales. In the Antarctic and subarctic regions, baleen whales depend almost entirely on krill for food.



A krill is a small, shrimplike marine animal.

**Scientific classification.** Krill belong to the class Crustacea, subclass Malacostraca.

**Kris Kring.** See *Santa Claus* (Santalike characters in other countries).

**Krishna.** See *Vishnu*; *Bhagavad-Gita*.

**Krishna Deva Raya** (? -1529) was an Indian king who reigned from 1509 to 1529. He was the greatest ruler of the Vijayanagar Empire in the Deccan region. He was a poet and patron of the arts. Krishna Deva's reign is regarded as a golden age of literature in the Telugu language. The king himself wrote the Telugu poem "Amukta Malyada," which deals with statecraft.

Krishna Deva did much to beautify Vijayanagar, the capital city of his empire. Buildings put up during his reign can still be seen, such as the great entrance tower to Vitthala, a temple dedicated to the god Vishnu, and the huge statue of Vishnu as *Narasimha* (Man Lion).

Krishna Deva was a descendant of the Tuluva dynasty, which took over from the Saluvas in 1503. In 1512, he acquired the land between the Tungabhadra and Krishna rivers in southern India. In 1514, he defeated the Hindus of Orissa. In 1520, he overcame the sultan of Bijapur. These conquests made his empire secure. Krishna Deva made skilful use of an alliance with the Portuguese.

See also *Vijayanagar Empire*.

**Krishna Menon, V. K.** (1896-1974), was a prominent figure in India's independence movement. He was also a member of the government of Jawaharlal Nehru, India's first prime minister. He was an excellent public speaker and fought vigorously for India's national interests.

Vengalil Krishnan Krishna Menon was born in Calicut in south India. He was educated there and in Madras

and later qualified as a lawyer. In 1924, he moved to London where he became the most prominent spokesman for the Indian National Congress in the United Kingdom (UK).

After India became independent in 1947, Krishna Menon held several important posts. First, he was Indian high commissioner to the UK. Later, he represented India at the United Nations, where he established an international reputation. From 1957, he served as India's minister of defence. Krishna Menon was forced to resign after India's poor showing in the war against China in 1962, and retired from active politics.

**Krona** is a standard coin of Iceland and Sweden. The Icelandic krona is made of aluminium. The Swedish krona is made of copper-nickel. For the value of the krona, see **Money** (table: Exchange rates).

**Krone** is a standard coin of Denmark and Norway. It is made of copper-nickel and is equal to 100 øre. See **Øre**; **Money** (table: Exchange rates).

**Kronos**. See **Cronus**.

**Kropotkin, Peter** (1842-1921), was a Russian geographer and political writer associated with anarchism. Born in Moscow, Kropotkin was a prince, but he renounced his title. Between 1867 and 1871, he explored Siberia, Manchuria, Finland, and Sweden. In 1873, Kropotkin published a new map of northern Asia.

In 1872, Kropotkin became linked to an extremist group in the International Workingmen's Association. He developed theories of anarchist communism based on the elimination of private property and wealth.

Kropotkin was jailed in 1874, but escaped in 1876 and fled from Russia. In 1883, he was imprisoned in France for his part in a plot involving dynamite. He was released in 1886, and settled in England. After the Russian Revolution in 1917, he returned to Russia. Kropotkin's books include *Memoirs of a Revolutionist* (1899).

**Kruger, Paulus** (1825-1904), was a South African statesman. He served as president of the Transvaal from 1883 to 1900. Kruger was a big, loud-voiced man with a commanding presence. Although not formally educated, he was shrewdly intelligent. He was deeply religious and conservative in his views. His followers called him "Oom (Uncle) Paul."

Stephanus Johannes Paulus Kruger was born in the Cape Colony, which was under British rule. His family were Boers. At the age of 10, he accompanied his family on the *Great Trek* northward to the Transvaal to escape British rule (see *Great Trek*). The British took over control of the Transvaal in 1877. Kruger led a revolt that resulted in regained freedom for the territory in 1881. In 1886, gold was discovered on the Witwatersrand, in the south of the Transvaal. This discovery sparked a rush of *Uitlanders* (foreign settlers) into the country. Kruger, fearful that they might dominate his state, granted them only limited civil rights.

Kruger was re-elected in 1888, but by 1893 his popularity was decreasing. In 1895, he repulsed the Jameson Raid, an unsuccessful invasion of the Transvaal aimed at overthrowing the Kruger government. Tension between the Boers and the British eventually erupted into the Second Anglo-Boer War (1899-1902). (See *Anglo-Boer Wars*). Kruger evaded capture. He sailed to Europe to obtain support for the Boers, but his mission was unsuccessful. Kruger died in exile.

**Kruger National Park** in South Africa is the largest national park in the world. It is located in the northeastern Transvaal, bordered by the Crocodile River in the south, Limpopo and Luvuvhu rivers in the north, Mozambique and the Lebombo mountains in the east, and the remainder of the Transvaal in the west. The park is about 350 kilometres long and 60 kilometres wide. It covers an area of 19,455 square kilometres.

More than 300,000 visitors visit the park each year. Problems facing the Kruger National Park include poaching, drought, and the controversy surrounding *culling* (killing wild animals to keep down their numbers). Animals that live in the park include about 480 species of birds, 150 mammal types, 50 species of fish, 40 types of frogs, and 34 kinds of snakes. Among big game there are about 7,000 elephants, 1,500 lions, 900 leopards, and 250 cheetahs.

The park is named after President Paulus Kruger, the last president of the South African Republic (Transvaal). In 1884, he agreed that an area be set aside to conserve the natural heritage. This area became the Sabie Game Reserve in 1898, which finally grew to become the Kruger National Park in 1926. Colonel James Stevenson-Hamilton has been called the "father of Kruger National Park" because of his efforts at consolidation and proclamation of the park in the early 1900's.



**Kruger National Park**, the largest national park in the world, is home to some 7,000 elephants.

**Krupa, Gene** (1909-1973), was the first jazz musician to popularize the drum set as a solo instrument. He became a symbol of the excitement of the swing era in jazz while playing with the Benny Goodman band from 1934 to 1938. Krupa was famous for his exceptional drum technique and for the image he presented—his black hair flying, his face and body in continuous motion.

Eugene Bertram Krupa was born in Chicago. In the 1920's, he played in dance bands but also worked in small jazz groups with Eddie Condon and other pioneers of early Chicago jazz. He went to New York City in 1928, where he played with Red Nichols and made records with Bix Beiderbecke. Krupa led his own bands from 1938 to 1943 and from 1944 to 1951.



**Krupp** is the name of a leading German industrial family. The Krupp firm became one of the greatest in the world producing munitions, steel, and machinery.

**Friedrich Krupp** (1787-1826) founded the Krupp works at Essen in 1811. His son, **Alfred Krupp** (1812-1887), later took over and developed the firm from one with four workers to one employing 20,000. He invented the seamless railway tyre, an important development for railways throughout the world. He also perfected a method of casting steel cannon which helped Prussia defeat Austria in 1866 and France in 1870, and gave the Krupps control of Germany's arms industry.

**Friedrich Alfred Krupp** (1854-1902), the son of Alfred Krupp, expanded the company's shipbuilding activities. The "Big Bertha" long-range guns of World War I (1914-1918) were named after his daughter Bertha. She married **Gustav von Bohlen und Halbach** (1870-1950), whom the kaiser permitted to bear the name of Krupp. He became head of the firm.

After World War I, the Allies reduced the firm's steel capacity and forbade it to make munitions. Concentrating on peacetime goods, Gustav Krupp rebuilt the company. But under Adolf Hitler, the Krupps produced arms again. After World War II (1939-1945), Gustav Krupp escaped trial as a war criminal because of illness. But his son, **Alfried Krupp von Bohlen und Halbach** (1907-1967), was sentenced to 12 years in prison. The Krupp company was confiscated after World War II. But in 1951, Krupp was freed and the firm was restored to him.

Krupp purchased equipment and rebuilt the firm into a leading European manufacturer. Financial problems ended family control of the Krupp works in 1968. Today, the firm is publicly owned.

**Krupskaya, Nadezhda Konstantinovna** (1869-1939), was a Russian revolutionary leader and the wife of V. I. Lenin. She helped her husband establish the Russian Communist Party in 1903.

Krupskaya was born in St. Petersburg. From 1891 to 1896, she taught adults at night school. She and Lenin met in 1894 at a meeting of revolutionaries. They were married in 1898 in Siberia, where both had been exiled for revolutionary activities. Through the years, Krupskaya assisted Lenin with his writings and in translating other Communist works.

Krupskaya helped Lenin lead the Bolshevik Revolution of 1917, in which the Communists seized control of the Russian government. Krupskaya became people's commissioner of education in the new government and helped to form the Soviet system of public education. She remained in the government after Lenin's death in 1924 and served on the Central Committee of the Communist Party. But she had little influence on Joseph Stalin, who was head of the government.

See also **Lenin, V. I.** (picture: Lenin and his wife).

**Kruse, Käthe.** See **Doll** (The early 1900's).

**Krypton** is a chemical element that makes up only about one-millionth of the earth's atmosphere. Krypton has the chemical symbol Kr. The British chemists Sir William Ramsay and Morris Travers discovered it in 1898. It was named *krypton* after the Greek word which means *the hidden one*. Most fluorescent lamps are filled with a mixture of krypton and argon. Krypton is also used in certain electronic valves, and in luminous sign tubes where a greenish-yellow colour is desired.

Krypton is a colourless, odourless, tasteless gas. It does not react readily with other substances. Krypton is classed as a noble gas (see **Noble gas**). The element has the atomic number 36, and an atomic weight of 83.80. It may be condensed to a liquid that boils at  $-152.3^{\circ}\text{C}$  and freezes at  $-156.6^{\circ}\text{C}$ . Krypton is obtained in the manufacture of liquid air.

See also **Ramsay, Sir William**.

**Ku K'ai-chih.** See **Gu Kaizhi**.

**Ku Klux Klan** is a group of white secret societies who oppose the advancement of blacks, Jews, and other minority groups. The Ku Klux Klan, also called the KKK or the Klan, is active in the United States and in Canada. It often uses violence to achieve its aims.

The Ku Klux Klan was formed in Tennessee, U.S.A., in 1865 or 1866. Its first leader, or *Grand Wizard*, was Nathan Bedford Forrest, a former general in the Confederate Army during the American Civil War (1861-1865). The group took its name from the Greek word *kyklos*, meaning *circle*, and the English word *clan*.

Klan members threatened, beat, and murdered many blacks and their white sympathizers in the Southern States. To hide their identity, members wore robes and tall pointed hoods. They also draped sheets over their horses, and rode at night. They burned tall crosses at their outdoor meetings to frighten nonmembers.

The Ku Klux Klan has had four major periods of activity: from the 1860's to the 1870's, from 1915 to 1944, from the late 1940's to the early 1970's, and since the mid-1970's. In the mid-1920's, it had more than 2 million members and was a powerful political force in the South. It has continued to oppose racial integration. Since the 1970's, new leaders have tried to give the organization a more respectable image. But declining support, and prosecutions for illegal activities, have reduced membership to about 6,000. Most of these members live in the Southern States of the U.S.

**Kuala Lumpur** is a federal territory of Malaysia. The territory includes the capital city, Kuala Lumpur, which gives the territory its name. The territory lies inland, surrounded by the state of Selangor. It occupies the central part of the Kelang Valley, at the junction of the Kelang and Gombek rivers, about 40 kilometres from the Strait of Malacca.

Half the people of the territory are Chinese. About a third are Malays. There are smaller numbers of Indians and other ethnic groups.

The federal territory is the seat of the federal government and the official residence of the *yang di-pertuan agong* (paramount ruler or king) of the country. The territory is administered by the prime minister's department. It has a mayor called the *datuk bandar*.

The federal territory is the national headquarters of administration, education, and cultural life, and the centre of Malaysia's industrial, commercial, and transport

#### Facts in brief about Kuala Lumpur (Federal territory)

**Population:** 1,145,075.

**Area:** 245 km<sup>2</sup>.

**Capital:** Kuala Lumpur.

**Largest town:** Kuala Lumpur.

**Chief products:** Agriculture—rubber, vegetables.

*Manufacturing*—various types of manufactured goods.



**Kuala Lumpur's** community mosque, the Masjid Jamek, stands on the original site, overlooked by modern multistorey office buildings.

activities. One-fifth of the workforce work for the government. The retail trade, factories, finance, insurance, and property sales also provide employment.

The federal territory is an international centre for trade in rubber, palm oil, and tin. Tin mining was an important industry from the mid-1800's to the mid-1900's, but most of the mines are now closed. Some of the abandoned mining areas have been turned into recreational water parks.

Rubber plantations occupy land in rural areas around the city of Kuala Lumpur. Fruit and vegetables are grown in some areas.

Kuala Lumpur is hot and humid throughout the year. The average temperature at Kuala Lumpur is 27° C. Differences in temperatures from month to month are small, but those between day and night are much higher. Temperatures may reach 32° C at noon, but at



The flag of Kuala Lumpur is similar to the national flag of Malaysia. Kuala Lumpur's flag has the star and crescent of Islam. The 14 stripes represent the states and federal territory.



The emblem of Kuala Lumpur has three interlocked shapes inscribed with symbols which stand for government and administration, for commerce, and for culture and learning.

### Places to visit

The following are brief descriptions of the interesting places to visit in the territory of Kuala Lumpur:

**Batu Caves** lie about 10 kilometres north of the city of Kuala Lumpur, on the road leading to Ipoh. The caves are part of a large limestone outcrop and are the home of many bats. A Hindu shrine in the largest of the caves can be reached by a flight of 272 steps. Thousands of Hindus visit the shrine each year during the Hindu festival of Thaipusam.

**Kuala Lumpur** is a major tourist centre. The city has many national institutions including the parliament house, the national mosque, the national museum, the national art gallery, and the national zoo. Parks in the city include the Lake Gardens on the Tasek Perdana Lake and the Lake Titiwangsa Gardens on the fringe of the city centre. There are several Chinese temples, including Chan See Shu Yuen temple and the smaller temple of See Yeoh, both near the centre of the city. There are also Hindu temples, including the Sri Mahamariamman and the Shiva temple of Sri Kandaswamy.

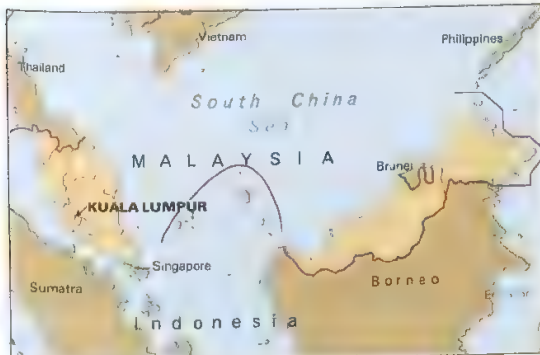
**Templer National Park**, on the road to Ipoh, is named after Sir Gerald Templer, a former British high commissioner. The park is an area of rainforest, with mountain streams and waterfalls. The towering limestone outcrop of Bukit Takun overlooks the park.

night may drop to 24° C. Rainfall is high and varies between 230 and 350 centimetres a year. The wettest months are from April to November.

Kuala Lumpur began as a mining settlement by the Kelang River in the mid-1800's. The territory developed into a modern settlement with Malay inhabitants and Chinese people who established tin mines and other businesses.

When Selangor became a British protectorate, Kuala Lumpur was made the administrative headquarters of the British *resident* (government administrator) in 1879. In the following year, it became the capital of the state. The Federation of Malay States, consisting of Selangor, Perak, Negeri Sembilan, and Pahang, came into existence in 1896. Kuala Lumpur became the federal capital, a role it has played ever since.

When the rubber industry expanded in the 1890's and 1900's, Kuala Lumpur became the rubber-trading centre. It handled the export of rubber and the dispatch of supplies to the new industry. When the road and railway links connected the states on the west coast, Kuala Lum-



The Malaysian Federal Territory of Kuala Lumpur is near the west coast of Peninsular Malaysia.



**Central Market** in Kuala Lumpur is a shopping centre that specializes in Malaysian products such as clothing and textiles, souvenirs, paintings and handcrafted goods such as batik, copper and silver work, pewterware, and pottery. Sometimes, there are outdoor performances of Malaysian dances and gamelan music.



pur became the focus of communication. Its population grew from 30,000 in 1900 to 316,200 in 1957.

Kuala Lumpur became a city in 1972. Its status was changed to that of a federal territory in 1974. In the process of this change its area was enlarged from 94 square kilometres to 245 square kilometres by incorporating several nearby townships and villages.

See also **Kuala Lumpur (city); Malaysia; Malaysia, History of.**

**Kuala Lumpur** (pop. 919,610) is the largest city and capital of Malaysia. It is also the country's most important commercial centre.

The city of Kuala Lumpur occupies just over one-third of the Federal Territory of Kuala Lumpur. It lies in the Kelang Valley, midway between George Town and Singapore. For the location of the city of Kuala Lumpur, see **Malaysia (map)**



**The Istana Negara** in Kuala Lumpur is the official palace of Malaysia's king, the *yang di-pertuan agong*.

**The city.** The Kuala Lumpur metropolitan area includes several old settlements such as Kepong, Gombek, Ampang, and Sungai Besi. All of these former towns now have new housing estates.

The rapid growth of the city has caused several problems, including population pressure on land and roads, inadequate housing and public transport, and shortage of recreational space.

Parliament House and government ministries are west of the Kelang River. Skyscrapers in the northern and western sections of the city house the headquarters of major Malaysian companies and banks as well as those of multinational corporations and international hotels. There are several universities and colleges in and around the city.

The city has many places of worship for people of various religions. Malays are Muslims and the National Mosque can accommodate many thousands of people. There are also many Christian churches and Hindu and Buddhist temples.

Kuala Lumpur is a medium-size capital city which blends its colonial past with traditional shops and modern skyscrapers. Petaling Street is the Chinatown of Kuala Lumpur. It is a typical Chinese business district with traditional covered footways and *shophouses*, which have shops on the ground floor and family homes upstairs. The shops and street stalls offer a variety of goods, food, fruit, and souvenirs. The street becomes a pedestrian area at sunset, crowded with shoppers and tourists looking for bargains. Many types of traditional products, such as *batik*, pewterware, and handicrafts, are also available in these shops and night markets (see **Batik**). There is a handicraft centre containing traditional Malay houses which present and sell the crafts of each of the Malaysian states.

To the west of Kuala Lumpur is Petaling Jaya, the first *new town* (specially planned town) of Malaysia and a sprawling residential industrial and commercial centre. Its middle-class community commutes daily to work in the city. Petaling Jaya is now the fifth largest town in the country, with a population of more than 200,000.



**Theau Hou Temple** stands on a hillside just beyond the central area of Kuala Lumpur City. Built in six tiers, it is one of the largest Chinese temples in Southeast Asia.

**Places of interest.** Along Jalan Sultan Hishamudin are several of the city's most distinctive architectural landmarks. Three buildings feature Moorish architectural styles with curving arches, domes, or minarets. These buildings include the old city hall, which was completed in 1897. The railway station and the Malayan Railway Administration Building date from the early 1900's. The Sultan Abdul Samad Building, where the state secretariat was formerly housed, was completed in 1897. It has a 43-metre copper-sheathed clock tower.

The National Museum is a striking building based on old Malay-style architecture. It has displays relating to Malaysian arts and crafts and history as well as the country's birds and mammals.

The National Monument is located in the Lake Gardens. This bronze sculpture commemorates the triumph of democracy over the Communist terrorism which had led to the proclamation of a state of emergency in 1948.

The six-tiered Theau Hou Temple, on a hill slope just outside the city centre, is one of the biggest Chinese temples in Southeast Asia.

The National Zoo has about 200 species of mammals, birds, and reptiles, from Malaysia and other countries. It also has an aquarium with more than 80 species of aquatic animals.

**People.** The population of Kuala Lumpur consists of 500,000 Chinese, 320,000 Malays, 140,000 Indians, and 9,000 others. The population has increased to more than three times its level at the time of Malayan independence in 1957. The food of Kuala Lumpur reflects the variety of the multiracial population. In roadside shops and in hotels, dishes available include food from Malays, Chinese, Indians, and other ethnic groups.

**History.** Kuala Lumpur, means "muddy river mouth." It derives its name from its location at the meeting place of the Kelang and Gombek rivers. Founded as a tin mining settlement in 1859, it became the capital of Selangor in 1887 and of the Federated Malay States of Selangor, Perak, Negeri Sembilan, and Pahang in 1896.

Prosperity developed from the success of mining and rubber planting. Kuala Lumpur became a centre of com-

merce and transport, and acquired its cosmopolitan character with Malay settlers, Chinese shopkeepers, Indian labourers, British administrators, and Arab traders.

Kuala Lumpur progressed from a town council in 1898 to a municipality in 1948. It became the capital of the Federation of Malaya in 1957 and of Malaysia in 1963. In 1972, it was proclaimed a city and in 1974 it formed the core city of the Federal Territory of Kuala Lumpur.

See also **Kuala Lumpur** (federal territory); **Malaysia**. **Kubelik, Rafael** (1914- ), is a Czech-born conductor. From 1950 to 1953, he conducted the Chicago Symphony Orchestra. He served as director of the Covent Garden Opera in London from 1955 to 1958. Kubelik was artistic director of the Metropolitan Opera in New York City in 1973 and 1974. Jerinym Rafael Kubelik was born in Býchory, near Kolín, Czechoslovakia. He studied violin with his father, Jan Kubelik, a famous violinist. Kubelik conducted in Czechoslovakia from 1936 until he left the country in 1948.



**Kublai Khan** (1216-1294), the grandson of Genghis Khan, founded the Mongol, or Yuan, dynasty that ruled China from 1279 to 1368. Kublai was the son of Tolui and brother of the fourth Great-Khan, Mangu. Kublai conquered Yunnan and Annam, and when Mangu died in 1259, Kublai became Great-Khan and ruler of the Mongol Empire. But his other brothers did not recognize his position. They disregarded Genghis Khan's warning to his heirs to remain united under one Great-Khan, and the unity of the All-Mongolia Empire soon ended.



Kublai established his capital in Cambaluc (now Beijing) in 1264. His forces took Quinsay (now Hangzhou), the capital of the Song dynasty, in 1276 and in the same year destroyed the Song fleet near Guangzhou (Canton). By 1279, Kublai had completed the conquest of China, which had begun under Genghis Khan. For the first time in Chinese history, a "barbarian" people had conquered the whole country. Burma, Cambodia, and other countries of Southeast Asia were forced to recognize the Yuan dynasty as their rulers. But Kublai's attempts to conquer Japan and Java failed. He also was unable to



### Kublai Khan's Mongol Empire

Kublai Khan ruled the Mongol Empire in the late 1200s. The empire consisted of four parts: a large area in the eastern half and three smaller areas in the western half. Kublai Khan controlled the eastern part but had little power in the western areas.

 Empire controlled by Kublai Khan  
 Other parts of the Mongol Empire



gain direct control over the western half of the Mongol Empire. Under Kublai's rule, art and science flourished, and cultural relations were established with countries throughout the world.

See also Genghis Khan; Mongol Empire (Later empire); Polo, Marco.

**Kubrick, Stanley** (1928- ), is an American film director. He became noted for his pictures dealing with serious social themes. Kubrick aroused much controversy with his satire *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb* (1964). The film is a bitter but comic treatment of how the Soviet Union and the United States accidentally start a nuclear war. Kubrick's science fiction story *2001: A Space Odyssey* (1968) became famous for its spectacular visual effects. His other major films include *Lolita* (1962), a satire; *A Clockwork Orange* (1971), a science fiction story; *The Shining* (1980), a horror story; and *Full Metal Jacket* (1987), a combat film set during the Vietnam War.

Kubrick was born in New York City. After directing the independent films *Killer's Kiss* (1955) and *The Killing* (1956), he impressed critics with *Paths of Glory* (1957), which delivers a forceful message against the inhumanity and stupidity of war.

**Kuching** (pop. 72,555) is the capital and largest town of Sarawak, one of the states of Malaysia. It is situated on the south bank of the Sarawak River, about 30 kilometres from the coast. For location, see *Malaysia* (map). The town with its suburbs has about 200,000 people. The actual town has about 44,000 people of Chinese ancestry, and about 18,000 Malays.

Kuching is a bustling town with a mixture of modern commercial buildings, traditional Chinese shophouses, and roadside markets. The town has several planned industrial estates. A bridge across the Sarawak River has encouraged development on the northern bank. Buildings in this area include the Petra Jaya State Legislative Assembly, state ministries, and a hospital.

Sarawak Museum, built in 1891, contains a collection of materials from Borneo's ancient past. The *Astana* (palace) was built in 1870.

The British founded Kuching in 1841. It underwent

rapid development after Sarawak joined Malaysia in 1963.

See also Sarawak.

**Kudarat, Sultan** (1600?-1671), a Filipino Muslim leader, fought against Spanish rule in the southern island of Mindanao. He was known as a warrior, but his main strength was as a military planner. By luring Spanish troops into marshy lands in his province, Kudarat and his men were able to defeat superior enemy forces. He brought together the various Muslim rulers in Mindanao by appealing to their nationalist feelings.

After his success against the Spanish, Kudarat adopted the title of *sultan*. He led two piratical expeditions, to the Visayan Islands and to Luzon, to harass the Spanish. In 1656, Kudarat declared a *jihad* (holy war) against Christians. He remained in possession of his sultanate, undisturbed by the Spanish, until his death.

**Kudu** is a large antelope. Two kinds of kudus live in the grassy regions of southern and eastern Africa south of the Sahara. The *greater kudu* stands about 150 centimetres high at the shoulder, and weighs about 270 kilograms. It is reddish to dark bluish-grey, and has 4 to 10 vertical stripes on its sides. The male has spiral horns that may be up to 1.5 metres long. The *lesser kudu* is about 1 metre high, weighs about 105 kilograms, and is dark yellowish-grey. Kudus eat grass and shrub sprouts. They live close to rivers during dry seasons.

See also *Animal* (picture); *Animals of the grasslands*; *Antelope* (with picture).

**Scientific classification.** Kudus are in the bovid family, Bovidae. The greater kudu is *Tragelaphus strepsiceros*, and the lesser kudu is *T. imberbis*.

**Kudzu** is a fast-growing climbing vine native to China and Japan. The plant has wide, three-pointed leaves and fragrant, violet-purple flowers. It may grow nearly 20 metres high.

In the Far East, people use the thick, starchy roots of the kudzu to make a type of flour called *Japanese arrow-root*. They use the stem of the kudzu to make a fibre called *kohemp*. The kudzu is cultivated in warm areas of both the Old and New World for hay, and as fodder for livestock. It is also used to prevent soil erosion. The vine

has many long roots that hold the soil. In addition, nitrogen-fixing bacteria that live on the roots help enrich the soil. But many farmers, foresters, and property owners consider kudzu a weed because it spreads so rapidly that it is difficult to control.

**Scientific classification.** The kudzu belongs to the pea family, Leguminosae (Fabaceae). It is *Pueraria thunbergiana*.

**Kuhn, Richard** (1900-1967), a German chemist, won the 1938 Nobel Prize for chemistry. The Nazi government forced him to decline it. He did notable vitamin research, especially on carotenelike substances (see **Carrot**). He isolated riboflavin (vitamin B<sub>2</sub>) from egg albumin. Kuhn was born in Vienna, Austria. He became director of the biochemistry section of the Max Planck Institute in 1937.

**Kuibyshev.** See **Samara**.

**Kuiper, Gerard Peter** (1905-1973), was an American astronomer who made important studies of the planets. He became known for his work in the United States space programme during the mid-1960's. Kuiper directed the Ranger space project, which provided the first close-up photographs of the moon's surface. These photographs helped scientists choose landing sites on the moon for U.S. astronauts. Kuiper's other achievements included the discovery of the second moon of Neptune and the fifth moon of Uranus.

Kuiper was born in Harenkarspel, near the town of Alkmaar, in the Netherlands. He attended the State University of Leiden and received a Ph.D. degree there in 1933. Later that year, Kuiper moved to the United States. He served on the faculty of the University of Chicago from 1936 to 1960. He then became director of the Lunar and Planetary Laboratory at the University of Arizona.

**Kujala Kadphises.** See **Kushan Empire**.

**Kukenaam Falls.** See **Cuquenán Falls**.

**Kukul**, also known as the *candle nut oil tree*, has long spreading branches with light green leaves. It is found on mountain slopes, and may grow as high as 18 metres. The kukui is popular as a shade tree. It also produces oil that is used as fuel and in varnishes. It grows in Australia, India, and the Pacific Islands.

**Scientific classification.** The kukui belongs to the spurge family, Euphorbiaceae. It is classified as *Aleurites moluccana*.

**Kukukukus** are people who live in a rugged mountain area of New Guinea between the Huon Gulf and the Gulf of Papua. The nearest government post is Menyamya. There are about 60,000 Kukukukus. Kukukukus are nomadic, shifting from one area to another, growing subsistence crops. At one time, the Kukukuku people had a reputation for being among the fiercest warriors in New Guinea. They were feared by Papuan coastal tribes, whom they frequently raided. Their lands are not productive, and the people are poor. In recent years, some of the Kukukukus have left their land in the mountains to work in towns near the coast.

**Kukulcán.** See **Maya** (The Mexican period).

**Kulikovo, Battle of.** See **Russia** (The rise of Moscow; picture: The Battle of Kulikovo).

**Kumiss** is a fermented beverage made from mare's or camel's milk. The word is also spelled *koumis*, *koumiss*, or *koumyss*. Kumiss is sour, transparent, and thick, and it bubbles like carbonated soda.

Kumiss is produced chiefly in central Asia. It is made by adding bacteria and yeasts to fresh milk, causing it to

ferment (see **Fermentation**). In the past, kumiss was made by adding a little already-fermented kumiss to fresh mare's milk in a smoked horse skin.

**Kumquat** is the name of a few species of citrus fruit related to the mandarin. The kumquat looks like an orange, but is only slightly larger than a Brazil nut. It may be round or oval in shape. The kumquat tree is a dwarf evergreen about 3 metres high, but many reach 5 metres. It stands frost better than an orange tree. The kumquat is native to China, and is widely cultivated in Japan.



Kumquats are citrus fruit that resemble oranges.

It is also grown on a commercial scale in parts of the United States. The kumquat is the only edible citrus fruit that does not belong to the genus *Citrus*. Kumquats are eaten whole, or used in cooking, or are candied (preserved in sugar), or made into preserves, marmalade, and jam.

**Scientific classification.** Kumquats are members of the rue family, Rutaceae. They are *Fortunella japonica* and *F. margarita*.

**Kun, Béla.** See **Hungary** (Between world wars).

**Kung fu.** See **Karate**.

**Kunlun Mountains** extend about 3,700 kilometres from the Pamir Highland in central Asia to central China. See **China** (terrain map). The western section forms a single chain. The eastern section spreads out and splits, enclosing the Qaidam and Qinghai basins. The Altun and the Qilian ranges form the northern boundary of the Tibetan Highlands. Ulugh Muztagh, which rises to a height of 7,724 metres, in China, is the highest peak in the Kunlun Mountains.

**Kunzite.** See **Gem** (picture [Spodumene]).

**Kuomintang.** See **Chiang Kai-shek**; **Sun Yat-sen**; **China** (History: Modern China).

**Kura River.** See **Caspian Sea**.

**Kurchatovium.** See **Element 104**.

**Kurdistan.** See **Kurds**.

**Kurds** are a people of a mountainous region of southwest Asia. Their homeland extends mainly over parts of Armenia, Iran, Iraq, Syria, and Turkey. The number of Kurds in the area is uncertain, but estimates place it at about 20 million. The majority of Kurds are Sunni Mus-





Location of Kurdistan, homeland of the Kurds.

lms. They speak Kurdish, an Indo-European language closely related to Persian.

Most Kurds live in rural communities. They farm and herd sheep and goats. Farm crops include cotton, tobacco, and sugar beet. Some Kurds live in cities and work in various urban occupations. The major Kurdish cities are Mahabad, Sanandaj, and Bakhtaran in Iran; Irbil, Kirkuk, and As Sulaymaniyah in Iraq; and Diyarbakir and Van in Turkey.

Historically, the name *Kurdistan* (a Persian word meaning the *Land of the Kurds*) has been used for the area where the Kurds live. But today, only a small province in Iran is officially named Kurdistan.

The Kurds have never had their own government. Their desire for cultural and political independence has led to conflicts between them and the governments under which they live. Their efforts to establish self-government were crushed by the Turks during World War I (1914-1918), by the Iraqis in the 1970's and 1980's, and by the Iranian government after the Iranian revolution of 1979. Many Kurds were killed during these times. In 1988, more than 200 Kurds were killed when Iraq attacked Kurdish villages with bombs that contained poisonous chemicals.

Kurds in Iraq also rebelled in March 1991, soon after Iraq's defeat in the Persian Gulf War. Iraq's army quickly put down the rebellion. After the defeat of the rebels, more than a million Kurds fled to the mountains of northern Iraq, and to Iran and Turkey. Thousands died of disease, exposure, hunger, or war wounds. In response to this crisis, nations that had fought Iraq in the Persian Gulf War provided the Kurdish refugees with food and other necessities. They also created a safety zone in northern Iraq to protect the refugees from Iraqi troops. By September 1991, most of the refugees had returned to their homes.

See also *Iraq* (People); *Turkey* (People).

**Kuril Islands** is a chain of islands that stretches 1,247 kilometres from the Kamchatka Peninsula of Russia to Hokkaido Island of Japan. For the location of the Kuril Islands, see *Russia* (terrain map). The Japanese name for the Kuril Islands is *Chishima* (Thousand Islands). The islands are part of Russia, but Japan claims several of

them, including Iturup, Kunashir, Shikotan, and the Nanobi Islands.

The chain includes 36 large islands, 20 smaller islands, and many large rocks. It has a total land area of 15,599 square kilometres. Most of the Kurils were formed by volcanoes built up from the ocean floor. Lofty mountains rise on the islands. The highest one is a volcano on Atlasova Island called Alaid. The volcano rises 2,339 metres above sea level. The chain includes about 100 volcanoes, about 40 of which still show signs of volcanic activity. Many otters and seals once lived on the Kurils, but they have become scarce because of hunting. Bears, wolves, and some smaller animals still live in the mountains. Products of the Kurils include fish, furs, timber, iodine, sulphur, and *agar* (a substance from seaweed used as an additive in food and drugs).

In 1643, the Dutch became the first Europeans to reach the Kurils. At that time, the islands were inhabited by a people called the Ainu. Russia established a colony on the Kurils in 1795. In 1821, Russia claimed control of the northern and central islands. The Kurils came under Japanese rule in 1875, when Japan traded the southern half of Sakhalin Island to Russia for the Kurils. The Soviet Union—formed under Russia's leadership in 1922—took control of the Kurils in 1945, at the end of World War II. When the Soviet Union broke up in 1991, Russia gained control of the islands. But Japan still claims several islands in the southern part of the chain. The dispute over ownership has strained relations between Japan and Russia since 1945.

**Kurosawa, Akira** (1910- ), became the first Japanese film director to gain worldwide fame. He established his international reputation with *Rashomon* (1950). This film tells the story of a crime seen from four points of view. *Ikiru* (*To Live*, 1952) illustrates the Christian maxim, "He who will lose his life shall find it." In contrast, *Stray Dogs* (1949) is a tough crime melodrama.

Kurosawa's other major films include his series on Japanese warriors called *samurai*—*Seven Samurai* (1954), *Yojimbo* (1961), and *Sanjuro* (1962). He also directed Japanese adaptations of the Shakespearean tragedies *Macbeth* (*Throne of Blood*, 1957) and *King Lear* (*Ran*, 1985). Many of these films seem to say that by the time people are wise enough to understand where their true interests lie, they are caught in a tangle of events created by their own passions. Kurosawa described his career in *Something Like an Autobiography* (1982). He was born in Tokyo.

**Kuroshio.** See *Japan Current*.

**Kush**, also spelled *Cush*, was a kingdom along the Nile River in what is now northeastern Sudan. Its founding date is not known, but it existed as early as 2000 B.C. and lasted until about A.D. 350.

Kush was important as a centre for the exchange of ideas among people from the Mediterranean area to the north, the Near East to the east, and African civilizations to the south. These people and the Kushites shared their knowledge of agriculture, art, politics, religion, and the use of metals. Kush was also a trading centre. It exported slaves and such goods as cattle, gold, and ivory.

Egypt conquered Kush in the 1500's B.C., and the Kushites adopted elements of Egyptian art, language, and religion. The Kushites conquered Egypt about 750 B.C. They ruled Egypt until about 670 B.C., when Assyri-

ans from Asia invaded the country and drove the Kushites out. An Assyrian army then destroyed Napata, the capital of Kush. The Kushites moved their capital south to Meroë, where their kingdom soon began to flourish again.

The Kushites discovered iron ore, made iron tools and weapons, and continued to trade. Free from Egyptian influence, they developed new styles in art and architecture, used their own language, invented a system of writing, and worshipped their own gods.

The final period of the Kingdom of Kush remains a mystery. Kush probably fell about A.D. 350 after armies from the African kingdom of Aksum destroyed Meroë.

See also **Africa** (picture: The civilization of Kush); **Nubia**.

**Kushan Empire** flourished in what is now Pakistan, Afghanistan, and northwestern India from about A.D. 50 to the mid-200's. Kujala Kadphises founded the empire by uniting five central Asian tribes. With them, he conquered the kings of Kabul and Kashmir. The successors of Kujala Kadphises extended the Kushan Empire into the Indus Valley and the western Ganges Valley. The most famous Kushan ruler was Kanishka (see **Kanishka**).

The empire was important as a bridge between different cultures. Kushan emperors opened and protected the Silk Road, a major trade route for caravans carrying silk and other goods from China to India and the Middle East. Silk, spices, and ointments left Indian ports in ships bound for the Roman Empire. Rome sent back gold coins, Greek wine, and harem girls. Ideas and customs were also transmitted along these trade routes between the peoples of central Asia, China, India, and Persia.

The chief religion of the Kushan Empire was Buddhism. Missionaries spread Buddhism throughout the empire and into China. The first stone images of Buddha were created by sculptors in the towns of Gandhara and

Mathura. The Gandhara artists modelled Buddhas on statues of Greek and Roman gods.

**Kuvasz** is a large, powerful dog. The kuvasz was chiefly developed in Hungary. The name comes from a Turkish word that means *armed guard of the nobility*. The kuvasz has a broad, muscular body but walks with a light-footed gait. The dog's pure-white coat grows long on the neck and the backs of the hind legs. The male kuvasz stands about 74 centimetres high at the shoulders and can weigh 52 kilograms. The female is about 69 centimetres high and weighs up to 41 kilograms.

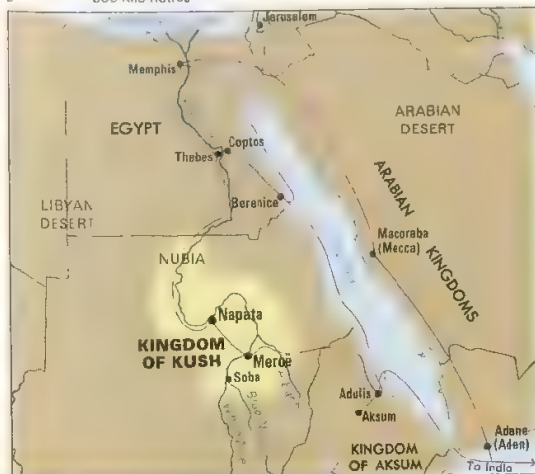


The kuvasz is a large, powerful dog.

### The Kingdom of Kush about 500 B.C.

The Kingdom of Kush, shown in dark grey below, occupied an area along the Nile River in what is now Sudan. The present-day boundaries are shown as white lines. Kush, a major centre of learning, lay on trading routes between Rome and India.

Distance scale  
0 500 Miles  
0 500 Kilometres



**Kuwait** is a small Arab country in southwestern Asia, at the north end of the Persian Gulf. It is bordered by Iraq and Saudi Arabia. This desert land is one of the world's leading petroleum producers. It has over one-tenth of the world's known petroleum reserves.

A poor country until 1946, Kuwait is now one of the richest and most progressive. With wealth gained by selling oil, Kuwait's rulers turned desert into a prosperous welfare state. Kuwait is one of the wealthiest nations in terms of national income per person. The country has free primary and secondary education, free health and social services, and no income tax.

The city of Kuwait, the country's capital, is the centre of a large urban area that has about two-thirds of the country's people. Kuwait gained independence from the United Kingdom in 1961. In 1990, an invasion of Kuwait by Iraq triggered the Persian Gulf War. For details, see the *History* section of this article.

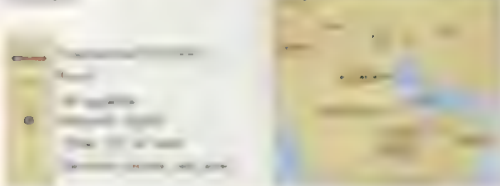
**Government.** Kuwait is governed by a ruler called an *emir*, or *amir*. The emir appoints the prime minister. The prime minister chooses the ministers, who the emir confirms. A 50-member National Assembly makes the laws.

**People.** Most people of Kuwait are Arabs and Muslims (followers of Islam). Arabic is the official language and Islam is the state religion. But laws forbid discrimination based on language or religion.

Kuwait's population is more than 28 times as large as it was in the 1930's. Immigration has accounted for most of the increase. Today, less than half the population is



## Kuwait



made up of Kuwait citizens. Most of the other people of Kuwait are Arabs from other lands. Asian Indians, Iranians, and Pakistanis. Palestinian Arabs are by far the largest single group of non-Kuwait residents.

Extremely few Kuwaiti children attended school until the 1950's when oil wealth enabled the government to begin building main schools. Today, more than 85 per cent of school-age children in Kuwait attend school. Special schools provide education for disabled people and for artists who want to learn to read and write. The universities of Kuwait opened in 1966. Kuwait also has several commercial and technical schools.

Until the mid-1980's few Kuwaiti women held a job outside the home or received much education. Today increasing numbers of women work in business offices and earn college degrees.

Kuwait has one doctor for every 600 people. In contrast there were only four doctors in the country in 1969. There are more than 10 hospitals.

**Land.** Kuwait, including its offshore islands, covers 17,810 square kilometres. Faylakah, the most important island of Kuwait, lies about 19 kilometres off the coast. Bahrain, the largest island, is uninhabited. The city of Kuwait lies on the southern side of Kuwait Bay, which is an important harbour.

From April to September, Kuwait is very hot. Temperatures often exceed 49° C in the shade. But the climate is not extremely unpleasant until August and September, when the humidity is relatively high. In January, the coldest month, temperatures average between 10° and 16° C.

## Facts to help you understand Kuwait

### Capital & cities

Kuwait has two main cities: Kuwait City and Al-Fahd.

Kuwait City is the capital of Kuwait. It is the largest city in Kuwait.

Al-Fahd is a city in Kuwait. It is the second largest city in Kuwait.

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The city of Kuwait, the nation's capital, lay shrouded in smoke from oil well fires after the Persian Gulf War ended in 1991. Iraqis set fire to hundreds of wells in Kuwait during the war.



political economy. It was an anti-creator of the end of the world, a Kuwaiti national front organization.

Kuwait has the oil industry, and most of the rest of the world. The country's economy has been built on oil, and the oil industry, and the oil industry, and the oil industry. Kuwait has a very strong economy, and a very strong economy.

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In August 1990, Iraq forces invaded and occupied Kuwait. The country has a very strong economy, and a very strong economy. The country has a very strong economy, and a very strong economy.

Some people believed that Iraq would next invade



Kuwaiti citizens celebrated the liberation of their country after it, and forces drove Iraqi forces from Kuwait in February 1991. The Iraqis had invaded and occupied Kuwait in August 1990.



oil-rich Saudi Arabia. The United States and many other nations sent forces to Saudi Arabia to defend that country. These nations, and Saudi Arabia and Kuwait, formed an allied military coalition. In November 1990, the United Nations Security Council approved the use of military force to remove Iraqi forces from Kuwait if they had not left by Jan. 15, 1991. Iraq refused to leave, and war broke out between the allied forces and Iraq. The allied forces bombed Iraqi military targets in Kuwait. In February, allied land forces moved into Kuwait. They quickly defeated the occupying Iraqi forces. For more details, see *Persian Gulf War*.

In October 1992, Kuwaitis elected a new 50-member National Assembly. The constitution was reinstated.

See also *Arab League*.

**Kuwait** (pop. 44,335) is the capital and chief port of the country of Kuwait. It lies on Kuwait Bay, a natural harbour in the northwest corner of the Persian Gulf (see *Kuwait* [map]). Kuwait is the centre of a large urban area in which about two-thirds of the country's people live.

Kuwait is a modern city, whose economy is supported by the country's enormous petroleum wealth. Residential areas lie between ringlike roads that form a grid around the city centre. Many of the city's Kuwaiti citizens live in attractive, villa-style homes. Most non-Kuwaitis live in modest flats.

Modern Kuwait was founded in the 1700's by the Utub (or Utub), a branch of the Anaza tribal confederation of north-central Arabia. Kuwait became an important port and shipbuilding centre in the 1700's. In the mid-1940's, the country of Kuwait became a leading producer of petroleum. The wealth from petroleum led to the growth and modernization of the city of Kuwait. Today, most manufacturing involves petroleum-related products.

From August 1990 until February 1991, troops from Iraq occupied the city and the rest of Kuwait. The Iraqis killed many people and caused enormous damage. See *Kuwait* (country [History]).

**Kuybyshev**. See *Samara*.

**Kwajalein** (pop. 6,624) is one of the world's largest atolls (rings of coral islands). It lies in the Marshall Islands in the central Pacific Ocean. Kwajalein has over 90 islands, with a combined land area of about 16 square kilometres. It is 306 kilometres in circumference, and surrounds a lagoon with an area of about 2,175 square kilometres. For location, see *Pacific Islands* [map].

Japan took Kwajalein from Germany in 1914. In World War II (1939-1945), Japan fortified the atoll and built airstrips and a seaplane base on Kwajalein. The United States captured Kwajalein in February 1944 and used it as a Navy base during the rest of the war. Since the mid-1960's, it has been a U.S. missile testing site. In 1947, Kwajalein and the rest of the Marshalls became part of the U.S. Trust Territory of the Pacific Islands. In 1986, these islands became a self-governing political unit in free association with the United States.

**Kwanzaa** is an Afro-American holiday based on the traditional African festival of the harvest of the first crops. It begins on December 26 and lasts for seven days. The word *Kwanzaa*, sometimes spelled *Kwanza*, comes from the phrase *matunda ya kwanza*, which means *first fruits* in Swahili, an East African language.

The holiday combines traditional African practices with Afro-American aspirations and ideals. The holiday

centres around the *Nguzo Saba*, seven principles of black culture. These principles are *Umoja* (unity), *Kujichagulia* (self-determination), *Ujima* (collective work and responsibility), *Ujamaa* (cooperative economics), *Nia* (purpose), *Kuumba* (creativity), and *Imani* (faith).

Each day of Kwanzaa is dedicated to one of the seven principles. In the evening, family members light one of the seven candles in a *kinara* (candleholder) and discuss the principle for the day. Near the end of the holiday, the community gathers for a feast called *karamu*. A typical *karamu* features traditional African food, ceremonies honouring the ancestors, assessments of the old year and commitments for the new, performances, music, and dancing.

**Kwashiorkor** is a disease caused by malnutrition, in particular by a severe lack of *complete protein*. All protein consists of building blocks called *amino acids*. But only complete protein has the nine amino acids that the body either cannot make itself or cannot make in sufficient amounts. Kwashiorkor occurs mostly in developing nations whose people lack foods high enough in complete protein. It generally strikes children from 1 to 3 years old, and it can be fatal.

Young children need large amounts of complete protein for growth and various body functions. Many mothers continue breast-feeding their babies for two years in addition to feeding them solid foods. Breast milk provides a complete-protein supplement, but the amount is generally small and protects against deficiency only if the basic diet is adequate. A nursing mother who becomes pregnant generally stops breast-feeding. The child may then eat only starchy, low-protein foods and kwashiorkor is likely to occur.

Kwashiorkor stops or slows a baby's growth. In severe cases, the muscles waste away, and the skin swells with body fluids. The child becomes extremely listless and resents any disturbance, even feeding. As the disease progresses, the skin loses its natural colour and may develop dark patches. Kwashiorkor also damages the liver and the small intestine and it may cause black hair to turn reddish-brown. Many victims of kwashiorkor suffer anaemia and show some vitamin deficiencies.

Kwashiorkor is fatal unless the victim receives protein. Treatment generally consists of supplementing the diet with dried skimmed milk and other high-protein foods. Vitamin and mineral supplements may also be necessary. Antibiotics are often given because kwashiorkor lowers a child's resistance to infection. Many children who survive kwashiorkor do not reach their potential physical growth.

**Kwazulu-Natal** is one of South Africa's nine provinces. It came into existence on April 27, 1994. The province is located on South Africa's eastern coast, and shares country borders with Swaziland and Mozambique to the north, and Lesotho to the west. It shares provincial borders with Eastern Transvaal, the Orange Free State, and Eastern Cape. The province includes the former province of Natal and the homeland of Kwazulu.

Durban, Kwamashu, Umlazi, and Pinetown, form the second largest urban concentration in South Africa. The region has a population of more than 3.5 million. The other main urban areas are Dundee and Glencoe, Estcourt, Ladysmith, Newcastle and Madadeni, Pietermaritzburg, Tongaat, Ulundi, and Vryheid.

## Facts in brief about Kwazulu-Natal

**Population:** 8,549,000

**Area:** 91,481 km

**Languages:** Zulu, English, Afrikaans

**Largest towns:** Durban, Pietermaritzburg, Pinetown, Maseru, Newcastle, and Maseru

**Chief products:** *Agriculture*—cattle, cotton, fruit, maize, sugar, tobacco. *Manufacturing*—cars, chemicals, clothing, fertilizers, iron and steel, paper and pulp. *Mining*—chromium, coal, copper, iron ore, nickel

**People.** For Kwazulu-Natal's total population, see the *Facts in brief* table with this article. About 82 per cent of the people are black. Most of South Africa's Indian people live in Kwazulu-Natal. People of European descent make up more than 7 per cent of the province's population. Most people in the province speak Zulu. The other main languages are English and Afrikaans.

**Government.** Kwazulu-Natal has 40 seats in South Africa's National Assembly and 81 seats in the Provincial Legislature of elected representatives. A provincial premier heads a Cabinet of ministers who carry out the functions of the regional government.

**Economy.** Kwazulu-Natal produces and exports 5 per cent of the world's sugar. Farmers grow sugar in the coastal regions and in the Midlands. Other important agricultural products include cattle, cotton, fruit, maize, poultry, tobacco, and vegetables. Fishing is also important. The province accounts for more than a third of South Africa's forestry. The Durban region is the centre of the province's manufacturing industry. Major manufactured products include cars, chemicals, clothing, fertilizers, iron and steel, paper and pulp, processed foods, and rayon.

Kwazulu-Natal has rich reserves of coal. Other minerals mined in the province are chromium, copper, iron ore, nickel, and titanium.

Durban's pleasant climate and beaches attract many tourists. The area is one of South Africa's main holiday destinations.

There is a high rate of unemployment in Kwazulu-Natal. In 1994, 25 per cent of those able to work were unemployed. One-third of the workforce is involved in informal economic activity.

**Land.** Kwazulu-Natal has a 600-kilometre coastline



**Kwazulu-Natal** is a province on the eastern coast of South Africa. The province lies along the Indian Ocean.



The Drakensberg Mountain range, above, in the north of Kwazulu-Natal is the site of South Africa's highest peak.

bordering the Indian Ocean. From the low-lying coastal strip, the land rises 1,300 metres to the rolling hills and deep valleys of the Midlands. East of the Midlands, the land rises to the Drakensberg Mountain range.

Most rivers flow eastward to the Indian Ocean. The main rivers include the Mgeni and the Tugela. The Pongola River flows northward into Mozambique. The 95-metre Howick Falls are on the Mgeni River. Lake St. Lucia and Lake Sibaya are freshwater lagoons near the coast. The province's national parks include Drakensberg, Hluhluwe, St. Lucia, and Umfolozi.

**Climate.** The summers are hot, humid, and wet. The winters are warm and drier. In the Midlands and farther inland, the climate becomes more temperate. See *South Africa* (maps: Precipitation, Temperature).

**History.** In the early 1800s, Shaka, a Zulu chief, built up an empire covering much of Natal and Zululand, later known as Kwazulu (see *Shaka*). In 1824, Shaka gave the land at Port Natal (now Durban), to the first European settlers to arrive there. Emigrant *Boers* (Dutch farmers) arrived in the region in 1837. The Boers established the Republic of Natalia in 1840. Natal became a province of the United Kingdom's Cape Colony in 1844. In 1856, Natal became a separate crown colony.

In 1879, Zululand was invaded by British and colonial troops and divided into 13 kingdoms (see *Anglo-Zulu War*). In 1897, Natal annexed the rest of Zululand. In 1910, Natal became a self-governing province in the new Union of South Africa.

**Apartheid** (enforced ethnic segregation) was imposed on the region from 1948 to 1990. Kwazulu was established as a homeland for the Zulu in the 1970s. Mangosuthu Buthelezi became its chief executive officer. In 1975, Buthelezi revived *Inkatha*, a Zulu cultural liberation movement. Rivalries between Inkatha and the African National Congress caused much violence in the region.

On the day of South Africa's first truly democratic election, April 27, 1994, Kwazulu and Natal were united as Kwazulu-Natal. The Inkatha Freedom Party won a majority of the votes and Frank Mdlalose became the first provincial premier.

See also *Apartheid*; *South Africa*; *South Africa, History of*.

**Kyanite** is a pale-blue mineral commonly found in metamorphic rocks (see *Metamorphic rock*). The word is also spelled *cyanite*.

The chemical formula of kyanite is  $Al_2SiO_5$ . The mineral is formed under high temperatures and pressures. It occurs as long flat bands of crystals, and its surface



varies in hardness. Kyanite is found in Australia, East Africa, India, and the United States.

Kyanite is used as an insulating substance because it is heat resistant. Some ovens used to manufacture glass and ceramics are lined with kyanite. Transparent kyanite is cut into gemstones for jewellery.

**Kyd, Thomas** (1558-1594), was an English playwright who greatly influenced the development of Elizabethan drama. He wrote the most popular English tragedy of the 1500's, *The Spanish Tragedy* (1580's).

In *The Spanish Tragedy*, Kyd created a new style of drama by blending elements of classical Roman tragedy with the lively but crude popular drama of his day. He based this style on that of the *revenge play*, which was developed by Seneca, a Roman philosopher and dramatist. In a revenge play, a main character seeks vengeance for a crime. *The Spanish Tragedy* is the story of a nobleman's revenge for his murdered son. In the drama, Kyd also used such classical elements as a ghost, much bloodshed and violence, and formal poetic language. Kyd was born in London.

See also **Drama** (Elizabethan playwrights).

**Kyle and Carrick** (pop. 113,572) was a local government district in the southwestern part of Strathclyde Region, Scotland. In April 1996, South Ayrshire Council replaced Kyle and Carrick as a local government district. Prestwick Airport handles all transatlantic flights to and from Scotland.

Industries in the district include fishing, forestry, and mixed farming for which Ayr is a market town. There is also some heavy engineering, and manufacturing industries producing aircraft, computer products, textiles, and whisky.

The district's main towns are Ayr, Girvan, Maybole, Prestwick, and Troon. The birthplace of the poet Robert Burns is at Alloway.

See also **Strathclyde Region**.

**Kymograph** is a recording instrument. It consists mainly of a rotating drum against which a *stylus* (writing instrument) presses. The stylus records information, usually by making a continuous wavy line on paper mounted on the drum. Recording instruments used in various fields of science are forms of kymographs.

**Kyoto** (pop. 1,461,103) is one of Japan's largest cities. It lies on Honshu Island, about 45 kilometres inland from the industrial centre of Osaka (see **Japan** [political map]). Kyoto was Japan's capital from A.D. 794 to 1868, and is the home of many of the country's cultural treasures.

Kyoto is an important religious centre, with many Buddhist temples and Shinto shrines housing priceless works of art. One of the most beautiful sights, the Golden Pavilion, was built in 1394 and rebuilt in the 1950's. Deputies of the Tokugawa shoguns lived in Nijo Castle from the 1600's to the 1800's. The Imperial Palace, first erected in A.D. 794, was rebuilt in 1855.

The city has many institutions of higher education, including the government-controlled Kyoto University, and Doshisha University, a Protestant school.

Workers in small factories produce exquisite textile, ceramic, lacquer, and cloisonné goods. Weaving and dyeing silks is an important industry.

Emperor Kammu established Japan's capital at Kyoto in A.D. 794. He called it *Heiankyo*, meaning *capital of peace and tranquillity*. Many Japanese called it *Miyako*,



**The Golden Pavilion at Kyoto** was built in 1394. It was one of many buildings constructed in the late 1300's under the Ashikaga dynasty, who governed Japan from Kyoto. The pavilion is at the centre of a landscaped garden.

meaning *imperial city*, or *Kyoto*, meaning *capital city*. Tokyo replaced Kyoto as the capital in 1868. Kyoto was the only major Japanese city which escaped bombing during World War II (1939-1945).

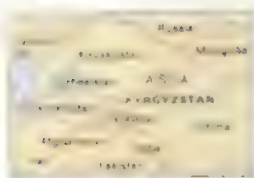
**Kyrgyzstan**, formerly known as *Kirghiz*, is a mountainous country in central Asia. It became an independent country in 1991, after 70 years as a part of the Soviet Union. Kyrgyzstan covers 198,500 square kilometres. For Kyrgyzstan's total population, see the *Facts in brief* table with this article. Bishkek is the capital and largest city. The official language is Kyrgyz.

**Government.** A president serves as head of state and is Kyrgyzstan's most powerful governmental official. The people elect the president to a five-year term. A prime minister and cabinet of ministers run the daily operations of the government. The president appoints the prime minister, who then appoints the cabinet of ministers. A one-house parliament, called the Supreme Council, makes Kyrgyzstan's laws. Its 105 members are elected by the people to five-year terms. Kyrgyzstan's main units of local government are regions and districts.

Kyrgyzstan's highest court is the Supreme Court. There are also regional and local courts. All judges are elected to five-year terms.

**People.** About 52 per cent of Kyrgyzstan's people belong to the Kyrgyz ethnic group. They speak Kyrgyz, a Turkic language. Most of the ethnic Kyrgyz live in rural areas and live by herding and farming. Ethnic Russians make up about 22 per cent of the population. They speak Russian, live mainly in urban areas, and hold most of the country's industrial and technical jobs. Other ethnic groups include Uzbeks, Ukrainians, and Germans.

## Kyrgyzstan



- International boundary
- Road
- Railway
- ★ National capital
- Other city or town
- Elevation above sea level



All Kyrgyz people and Uzbeks are Muslims. Most of the other people are Christians.

Among the ethnic Kyrgyz, tribal organizations and large kinship units called *clans* play important roles in social customs. Each tribe consists of a number of clans. A Kyrgyz clan includes all people who are descended from a common ancestor through their father's side of the family. Senior clan members function as community leaders. Traditionally, tribal leaders have been the most respected members of Kyrgyz society. When the Soviets took over, Kyrgyz tribal leaders were given high governmental positions. Today, tribal leaders hold most of the regional and national government offices in Kyrgyzstan.

Kyrgyz social life is centred around the family. Members of an extended family live together in one household. Such a household might include parents, children, married sons and their children, and other relatives. Kyrgyz tend to marry only people in their own clan.

About 62 per cent of Kyrgyzstan's people live in rural areas, and about 38 per cent live in urban areas. Most urban dwellers live in cement apartment buildings or stucco houses. For hundreds of years, large numbers of rural Kyrgyz were *nomadic* (wandering) herders who raised livestock in mountain valleys in the summer and

moved them to the foothills in the winter. In the 1930's, the Soviet Union set up government farms and forced herders to live on them. Today, most of the rural people live in mud-brick houses in villages. But some rural people still raise livestock in the nomadic life style at least part of the year. These people live in portable, tentlike *yurts*, constructed of a round wooden frame covered with felt.

The Kyrgyz people wear both Western-style and traditional clothing. Traditional clothing for men includes a padded or a sheepskin coat, boots, and a white felt hat with black flaps. Married women often wear a white turban made of a long scarf.

Traditional Kyrgyz foods include *shurpa* (mutton and vegetable soup), and *besh barmak* (a dish of lamb and noodles with broth). Popular milk products include cheese, *ayran* (a yoghurtlike drink), and *kumiss* (fermented mare's milk).

The Kyrgyz people enjoy folk songs and dancing. The recitation of *epics* (poems about heroic events) is a traditional Kyrgyz event. One of their most famous epics is the *Manas*, a poem describing Kyrgyz history.

The government requires children to attend school between the ages of 7 and 17. The country has 10 schools of higher education.

**Land and climate.** The Tian Shan and Alay mountains cover most of Kyrgyzstan. About three-quarters of the country lies at an altitude of more than 1,500 metres above sea level. Peak Pobedy, the country's highest mountain, rises 7,439 metres in the Tian Shan along the border with China. Only about 15 per cent of Kyrgyzstan is below 915 metres above sea level. These areas include plains and mountain valleys. Most of the people live in these relatively low places. The country's chief rivers include the Chu, Talas, and Naryn.

Temperatures in Kyrgyzstan vary with altitude. Summers are very warm and dry in the valleys and plains, and cool in the mountains. July temperatures average 16 to 24° C in the valleys and plains and about 5° C in the mountains. Winters are chilly in the lowlands, but extremely cold in the mountains. January temperatures average -5 to -14° C in the lowlands and -28° C in the mountains.

**Economy.** Agriculture accounts for about two-fifths

### Facts in brief about Kyrgyzstan

**Capital:** Bishkek.

**Official language:** Kyrgyz.

**Area:** 198,500 km<sup>2</sup>. *Greatest distances*—east-west, 935 km; north-south, 435 km.

**Elevation:** *Highest*—Peak Pobedy, 7,439 m above sea level.

*Lowest*—Naryn river at the western border, 500 m above sea level.

**Population:** *Estimated 1996 population*—4,754,000; density, 24 people per km<sup>2</sup>; distribution, 38 per cent urban, 62 per cent rural. *1989 census*—4,290,442. *Estimated 2001 population*—5,071,000.

**Chief products:** *Agriculture*—cattle, cotton, eggs, fruit, goats, grain, milk, pigs, vegetables, wool. *Manufacturing*—construction materials, food products, machinery, metals, textiles. *Mining*—antimony, mercury.

**Flag:** The flag has a red field with a yellow sun in its centre. The sun bears a yellow disc with two intersecting sets of three curved red bands. See **Flag** (picture: Flags of Asia and the Pacific).

**Money:** *Currency unit*—som. One som = 100 tyin.





**Kyrgyz shepherds** guide sheep across a grassy hillside. Livestock raising is Kyrgyzstan's chief agricultural activity, with sheep being the nation's most important kind of livestock.

of the value of Kyrgyzstan's economic production. Livestock raising is the chief agricultural activity. Sheep are the most important kind of livestock. People also raise cattle, goats, and pigs. They graze yaks in the high mountains. Less than 10 per cent of the land is suitable for raising crops. Farmers rely on irrigation to provide water for most crop growth. Chief crops and other leading agricultural products include cotton, eggs, fruit, grain, milk, vegetables, and wool.

Manufacturing makes up about a third of the value of production in Kyrgyzstan. Chief manufactured products include construction materials, food products, machinery, metals, and textiles. The country's major industrial centre is Bishkek. Mines in Kyrgyzstan yield a number of minerals, including antimony, coal, gold, lead, mercury, petroleum, uranium, and zinc.

Kyrgyzstan has only one major railway. Roads link major Kyrgyz towns, but not all are paved. Buses are the chief form of transport. An airport at Bishkek handles all flights to and from Kyrgyzstan.

Radio stations broadcast from Bishkek and other cities. The country publishes newspapers and magazines in Kyrgyz and Russian.

**History.** Nomads who raised livestock were the first people to live in what is now Kyrgyzstan. They settled into the region from various parts of northern Asia. During the 500's and 600's, Turkic tribes began to invade the region. Waves of Turkic invasions continued into the 1100's. Mongols conquered the area in the early 1200's. The Mongols established regions called *khanates*, which were ruled by chieftains. Some of the country's people probably descended from the Turkic and Mongol tribes. In the 1600's, Islamic missionaries called *sufis* brought Islam to the region.

Kyrgyzstan remained primarily under the domination of Mongol peoples until 1758, when China gained control. The Chinese maintained loose rule over the Kyrgyz until the 1830's, when the oppressive Khanate of Kokand conquered the Kyrgyz people.

The Russian Empire began to expand into central Asia in the mid-1800's. It defeated the Khanate of Kokand in 1876 and made the region a Russian province. The Russian government took control of vast areas of land and encouraged Russian, Ukrainian, and other Slavic peasants to settle there. Tens of thousands of foreign agricultural workers came. The settlement restricted grazing land and lowered the Kyrgyz standard of living. In 1916, the Kyrgyz rebelled, unsuccessfully, against the Russians. Thousands were killed on both sides, and as many as 150,000 Kyrgyz people fled to China.

In 1917, Communists overthrew Russia's czar and took control of that country. The Soviet Union was formed in 1922 under Russian Communist leadership. In 1924, the Soviets made Kyrgyzstan an *autonomous oblast* (self-governing region) of the Soviet Union called the Kara-Kyrgyz Autonomous Oblast. In 1936, the region became a Soviet republic called the Kyrgyz Soviet Socialist Republic.

Soviet rule changed many aspects of life in Kyrgyzstan. The Soviet Union established a powerful Communist government and took control of all industry and land in Kyrgyzstan. It forced nomadic herders to settle on government farms. The Communist Party also became the only legal political party. In addition, Soviet law forbade certain traditional cultural practices, such as religious instruction. However, the Soviet government helped develop agriculture and industry in Kyrgyzstan. School and health-care systems were also improved.

In the late 1980's, the Soviet government began giving people more freedom. In 1990, Kyrgyzstan declared that its laws overruled those of the Soviet Union. In mid-1991, the Communist Party was dissolved, and Kyrgyzstan began moving toward creating a free-enterprise economy. The government began selling off farmland and businesses to private owners. The Soviet Union broke apart in December 1991, and Kyrgyzstan became an independent country. The country joined the Commonwealth of Independent States, a loose association of former Soviet republics.

The new nation's problems include tensions between ethnic groups. Conflicts exist between the Kyrgyz and the Uzbeks over territorial claims and other disputes. In 1990, violence broke out between the two groups, resulting in hundreds of deaths.

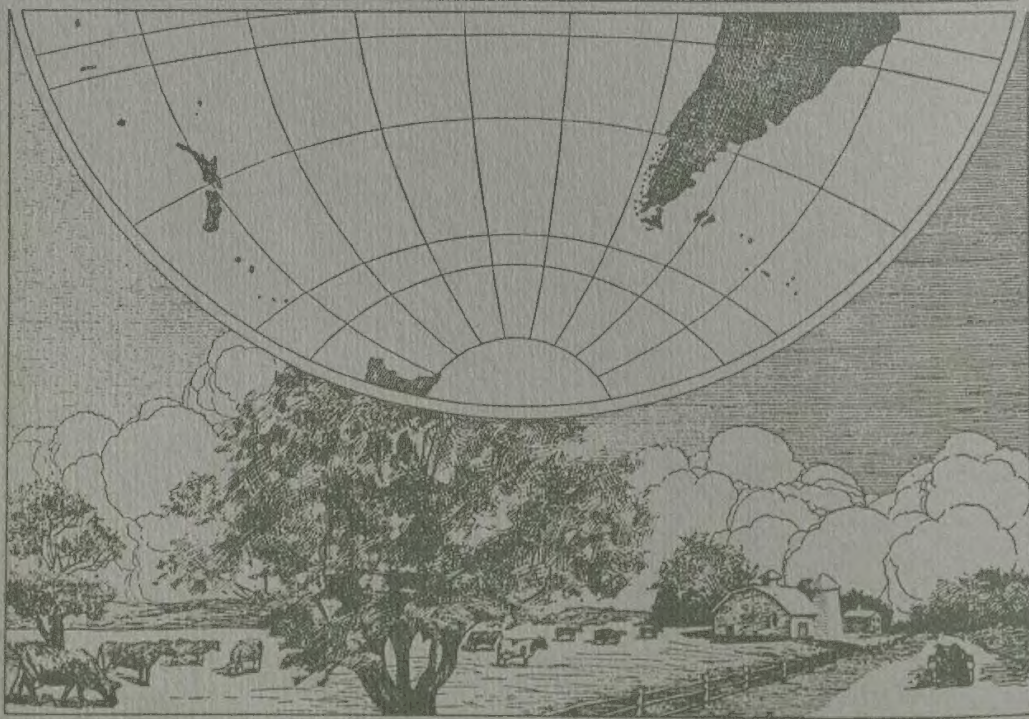
See also **Commonwealth of Independent States**; **Tian Shan**.

**Kyzyl Kum** is a desert that lies in southern Kazakhstan and northern Uzbekistan in central Asia. Kyzyl Kum means *red sands* in Turkic. The desert covers about 228,000 square kilometres between the Syr Darya and Amu Darya rivers, and is southeast of the Aral Sea. Low hill ranges and sandy wastes and dunes cover parts of this desert. Loess soils are scattered in the southeastern portion. Other sections of the desert, such as the northern Syr Darya River plains and the eastern upland fringes, have been irrigated so that farmers can grow crops. Mining and livestock-raising are also part of the area's economy.

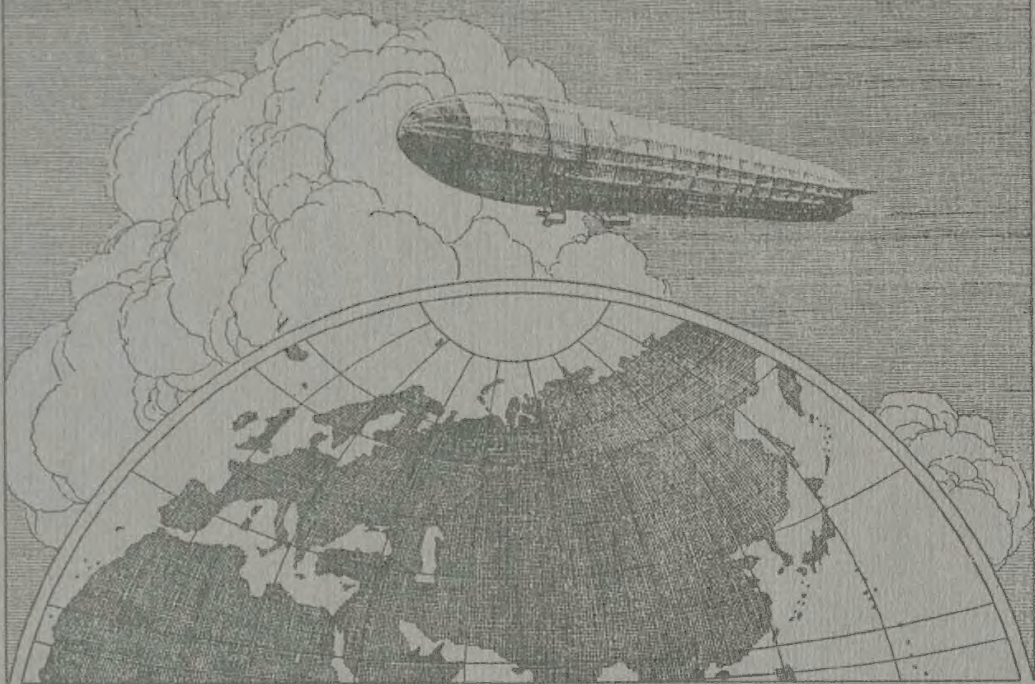




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